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annual report

MINUTES

OF THE

EIGHTEENTH ANNUAL CONVENTION

OF

THE ONTARIO ASSOCIATION

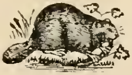
FOR THE

ADVANCEMENT OF EDUCATION,

HELD IN

THE PUBLIC HALL, NORMAL SCHOOL, TORONTO,

On Tuesday, 13th August, 1878.



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OFFICERS.

1878–1879.

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MINUTES

OF THE

EIGHTEENTH ANNUAL CONVENTION

OF

THE ONTARIO ASSOCIATION

FOR THE ADVANCEMENT OF EDUCATION,

HELD IN THE PUBLIC HALL, NORMAL SCHOOL, ON TUESDAY,
AUGUST 13TH, 1878.

The Convention opened at ten o'clock.

The President, Dr. McLellan, in the Chair.

A portion of Scripture was read and Prayer offered by Mr. J. R. Miller.

Moved by Mr. H. Dickinson, seconded by Mr. J. R. Miller, That the Minutes of the last Meeting having been published, be considered as read, and be adopted as correct.—Carried.

The Secretary reported correspondence with Dr. Wilson, and Professors Young and Dawson.

The Treasurer's Report was then read, after which the President appointed Messrs. Dickinson and McIntosh as Auditors.

Mr S. P. Halls was appointed Minute Secretary.

The Meeting adjourned until two p.m.

AFTERNOON SESSION.

President in the Chair.

Mr. McIntosh was called upon to introduce the subject of "Professional Training of Teachers."

Mr. Dickinson, Stratford, thought that there should be a union of Counties for Model School purposes.

Mr. Miller, Walkerton, advocated the lengthening of the Model School term.

Mr. McCallum, Hamilton, thought that too great a burden was placed on the Model School Masters, and that the Model School Session should extend from September to the middle of December.

Mr. Smith, Wentworth, urged that the administrative ability of the teachers in training should be cultivated.

Mr. McFaul, Lindsay, would take about five from each class in the Public School, and request the teachers in training to organize these as a rural school.

Mr. Goggin, Port Hope, endorsed most of the views of the previous speakers, and thought that drill and music should be taught, and that the Model School Masters should devote half of each day to the supervision of Model School work.

Mr. Knight, Lindsay, supported most of the ideas advanced, and thought that the Model School pupils would not suffer from being experimented on by the teachers in training, as they (the teachers) would do their best in order to get as high a mark as possible.

Mr. Hodgson, York; Mr. Dearness, Middlesex; Mr. J. R. Miller, Goderich; Mr. McAllister, Toronto; Dr. Kelly, Bradford: and others, took part in the discussion. Mr. McIntosh replied.

This very profitable discussion was brought to a close by the following resolution:

Moved by Mr. McIntosh, seconded by Mr. Brown, That the whole subject of the Professional Training of Teachers be referred to the following Committee: Messrs. Smith, Goggin, Dearness, McFaul, McQueen, Miller (Huron), Alexander, Dickinson and McIntosh, and that they report to morrow afternoon —Carried.

Moved by Mr. A. McMurchy, seconded by Mr. S. P. Halls, That the hours of meeting for this Convention be from two to five o'clock, p.m., and from half-past seven p.m., to adjournment—the forenoon of each day being for meetings of the different Sections of the Association.—Carried

The Meeting adjourned.

EVENING SESSION.

On re-assembling the President gave an address on "Recent Educational Reforms and the Principles they involve."

Moved by Mr. Smith, Wentworth, seconded by Mr. Lewis, Toronto, That a hearty vote of thanks be tendered to Dr. McLellan for his very able and eloquent lecture.

The motion was put to the meeting by the Vice-President and *carried unanimously*.

RECEPTION OF DELEGATES.

The following Delegates reported on behalf of their respective Associations:

Rev. T. Magee, South Simcoe,	Membership,	70
Dr. Lusk, Halton,	"	40
D. Fotheringham, Esq., N. York,	"	40
Mr. McKinnon, E. Grey,	"	70
Mr. H. Rezin, West Victoria and Bracebridge,	"	130
Messrs. Allin & Greer, South Grey,	"	70
Messrs. G. Dickson, B.A., and J. W. Smith, } Wentworth,	"	150
Dr. Wadsworth, Norfolk,	"	90
Mr. J. Miller, Elgin,	"	100
Mr. McPherson, N. Wellington,	"	65
Mr. Boyle, S. Wellington and Guelph,	"	75
Mr. McCamon, S. Hastings and Belleville,	"	120
Mr. Harvey, N. Simcoe,	"	120
Mr. Knight, E. Victoria,	"	50
Mr. D. Johnston, Northumberland,	"	130

The Delegates stated that the Associations were doing good practical work, generally procuring the services of some prominent Educationist to lecture and illustrate methods of teaching the various subjects. Professional Libraries were being established. The finances, as a whole, were good, and the teachers were taking a greater interest in the meetings.

The Meeting adjourned.

Wednesday, August 14, 1878.

The Convention met at two o'clock.

The President in the Chair.

Meeting opened with reading of Scripture and Prayer, by Rev. T. Magee.

Minutes of previous Meeting read and confirmed.

The Auditors' Report was read and received.

Mr. G. Dickson, B.A., of Hamilton, then read a paper on "The Non-Professional Training of Teachers."

A discussion on the points referred to in Mr. Dickson's paper ensued, in which Messrs. Miller, St. Thomas; Scarlett, Harvey, McIntosh, Dawson, Connor, Tamblyn, McGann, Grant, Strang, Lewis, and Mr. Buchan, H. S. Inspector, took part.

It was then moved by Mr. Clark, seconded by Mr. D. Johnson, That a vote of thanks be tendered to Mr. Dickson, for his able and suggestive paper.—Carried.

Prof. Ramsey Wright, University College, then read a paper on "Biology in Elementary Education."

Moved by J. M. Buchan, M.A., H. S. I., seconded by Mr. Boyle, That a vote of thanks be given to Prof. Wright, for his able paper.—Carried.

It was resolved that the Report be considered clause by clause.

Moved and seconded That the Session be extended for half an hour.—Lost.

The meeting adjourned

EVENING SESSION.

The President in the Chair.

J. M. Buchan, M.A., High School Inspector, gave an address on "Moral Training in Schools."

Moved by Mr. McGann, seconded by Mr. Scarlett, That a vote of thanks be tendered to Mr. Buchan for his able address.—Carried.

A discussion on "Moral Training in Schools" then followed, in which Messrs. Houghton, Miller, St. Thomas; Miller, Walkerton; McKinnon, Dickinson, McAllister, Brown, Spence, Knight, Alexander and Johnson, took part.

RECEPTION OF DELEGATES.

The following Delegates reported on behalf of their respective Associations:

Mr. Curtis, N. Hastings,	Membership,	60
Mr. Rothwell, Brant,	"	120
J. R. Miller, W. Huron,	"	100
" Parry Sound,	"	24
R. Alexander, Waterloo,	"	75
F. Spence, Toronto,	"	130
Messrs. Munro & Dawson, Eastern Ont.,	"	50
H. Dickenson, N. Perth,	"	70
J. Dearness, E. Middlesex,	"	180
G. Milden, Stormont,	"	70
Mr. Munroe, Ottawa Teachers' Society,	"	33
Mr. Duncan, N. Essex,	"	70
A. Miller, W. Bruce,	"	80

Reports were received from Delegates from twenty-nine Associations, having altogether a total membership of 2392.

Mr. D. Johnson gave notice that he would, on to-morrow, move That Art. V of the Constitution be struck out, and that the Public School Section be a Delegated one.

The Meeting adjourned.

Thursday, August 15, 1878.

The Convention met at two o'clock.

The President in the Chair.

The Minutes of previous meeting were read and confirmed.

Mr. McMurchy read the Report of the Executive Committee, recommending the following officers for the ensuing year:

President—Dr. McLellan.

Recording Secretary—Jas. Hughes.

Corresponding Secretary—Adam Purslow.

Treasurer—Robt. Alexander.

Moved by Mr McMurchy, seconded by Mr. Fotheringham, That the Report be received.—Carried.

Moved by Mr. Harvey, seconded by Mr. J. R. Miller, That the Report be considered clause by clause.—Carried.

Moved by Mr. Knight, seconded by Mr. Machell, That Dr. McLellan be President.—Carried.

Moved by Mr. Goggin, seconded by Mr. McFaul, That Mr. James Hughes be Recording Secretary.—Carried.

Moved by Mr. Brown, seconded by Mr. Miller (Walkerton), That Mr. A. Purslow be Corresponding Secretary.—Carried.

Mr. Alexander having declined to accept the position of Treasurer it was

Moved by Mr. McIntosh, seconded by Mr. Harvey, That Mr. F. S. Spence be Treasurer.—Carried.

Moved by Mr. Dawson,, seconded by Mr. Alexander, That the thanks of this Association be given to Messrs. McMurchy and McAllister, for their untiring zeal as Secretary and Treasurer of this Association for several years past.—Carried.

Moved by Mr. Dickinson, seconded by Mr. Goggin, That Mr. Johnson, of South Hastings, be the Delegate to represent this Association at the next meeting of Eastern Association.—Carried.

The Report of the Committee on the Professional Training of Teachers was next discussed.

The following is the Report:

"1. That in the organization and management of County Model Schools special consideration be given to the requirements of rural schools, by occasionally selecting a number of pupils from the different classes and arranging them so as to illustrate the method of conducting an ungraded school.

2. That military drill and calisthenics be added to the curriculum.

3. That the continuation of thorough inspection of Model Schools is necessary to their efficiency.

4. That uniform professional examination papers are desirable.

5. That the present regulations respecting the qualification of Head Masters of County Model Schools be carried out in future.

6. That Head Masters of County Model Schools be *ex officio* members of the County Board of Examiners, provided that they hold certificates as examiners under the present regulation.

7. That the Government Grant be increased, and the payment of the Municipal Grant be made compulsory.

8. That it is advisable to lengthen the sessions of County Model Schools.

9. That the professional training in a Normal School for the length of time specified in Section 1, Chapter 3 of the revised regulations should be received by every candidate for a first-class certificate before obtaining such certificate.

10. Since the character of the work done in the County Model Schools, and the efficiency with which the inspection of Public Schools is performed, depend largely upon the thoroughness of the previous training received by Inspectors and Model School Masters, it is necessary in the interest of education that the work of professional training carried on in Normal Schools be performed with great thoroughness and efficiency."

The Report was adopted by the Convention with the following amendments: In clause 2 the word "military" was struck out and the following added at the close: "The teaching may be done in connection with the ordinary Public School work." The following was added to the 4th clause: "But that County Boards should be allowed to fix the per centage to be obtained by successful candidates." Clause 6 was struck out.

The Meeting adjourned.

EVENING SESSION.

The President in the Chair.

The Minutes of Afternoon Session were read and confirmed.

Jas. Hughes, Esq., Public School Inspector, Toronto, delivered an address on "The work of the Association, and how best to do it," after which Mr. Hughes moved, seconded by Mr. Miller, of St. Thomas, That a Committee, consisting of Messrs. McMurchy, Dawson, Johnston of Cobourg, McAllister, Dearness and the mover, be appointed to consider the advisability of altering the constitution of this Association to report at the next Annual Meeting.—Carried.

Moved and seconded, That the thanks of this Meeting be given to Mr. Hughes for his very able and suggestive address.—Carried.

Professor Goldwin Smith being present, was called on to address the Association.

In compliance with the request he gave an admirable address on the "Educational Tendencies of the Age."

Moved by D. C. McHenry, seconded by A. McMurchy, That a vote of thanks be given to Professor Smith for his able address.—Carried.

Moved and seconded, That the Report of the Committee on the distribution of Legislative and Municipal Grants lie over for another year.—Carried.

Moved by Mr. N. B. Grier, seconded by Mr. D. Allin, That we consider it only a matter of justice to the Teachers of the Province that the clause in reference to superannuated teachers which provides that they shall teach until sixty years of age, unless disabled by sickness, be amended by introducing a clause, giving them the privilege of retiring from the profession, after an actual service of twenty-five years, without forfeiture of their claims upon the Superannuation Fund.—Carried.

Reports of proceedings of High School Masters' Section, Inspectors' Section, and Public School Teachers' Section, were laid on the table.

It was resolved that the next Meeting of the Association be held Toronto.

Votes of thanks were passed to the Railroad Companies for reduced fares, to the City Newspapers for their full reports of the proceedings of the Association, and to the Hon. The Minister of Education, for the use of the Hall.—Carried.

Moved and seconded, that the thanks of the Association be given to the President for the very able manner in which he has presided over the deliberations of the Association, and for his zeal in Educational matters generally.—Carried.

The National Anthem was then sung and the Convention closed

HIGH SCHOOL MASTERS' ROOM,
Education Department,
August 13, 1878.

The High School Masters' Section met at half-past nine a.m.

Members Present.—Messrs. McMurchy, Houghton, Lusk, Miller (St. Thomas), Leitch, Jeffers, Rothwell, Shaw, Earle, Miller (Walkerton), Michell and Orr.

The meeting having been called to order, Mr. McMurchy was appointed Chairman and A. Miller, Secretary.

The subject of High School Support was then taken up, Mr. Miller, St. Thomas, opening the discussion. The points chiefly dwelt upon were the inadequacy of the support given to High Schools; the necessity of the Government granting increased aid in view of the increased amount of work thrown upon the High Schools by the recent changes in the School Law and Regulations; the best means of obtaining more support from County Councils; the anomalous position of Towns separated from Counties; and Increasing the revenue by imposition of fees.

The following gentlemen took part in the discussion: Messrs. Shaw, Jeffers, Orr, McMurchy, Houghton, Michell, Rothwell, McMurchy and A. Miller.

The following resolution was then adopted:

Moved by Mr. Jeffers, seconded by Mr. Michell, That Messrs. Orr, Lusk and J. Miller be a Committee to draft a resolution with reference to the pecuniary support of High Schools, to report to-morrow morning.—Carried.

Section then adjourned to meet to-morrow at nine a.m.

HIGH SCHOOL MASTERS' ROOM,
Education Department,
August 14, 1878.

Section met at 9.30 a.m. Mr. McMurchy in the chair.

Minutes were read and approved.

Mr. Miller presented the following Report of the Committee, and moved, seconded by Mr. Jeffers,

That the Report be received.—Carried.

REPORT OF COMMITTEE—HIGH SCHOOL MASTERS' SECTION—ON PECUNIARY SUPPORT TO HIGH SCHOOLS.

1. That the present sources of support to High Schools do not secure an amount sufficient to maintain their efficiency.

2. That the advantages of these institutions to the community entitle them to a more liberal support from public funds.

3. That the large amount of Educational Work thrown upon the High Schools by the non-professional training of Teachers has obviated the necessity of contemplated Normal School Expenditure, and given a first claim to the High Schools for increased support from the Legislature.

4. That the grant for Upper School Pupils should be a fixed sum per pupil.

5. That High Schools situated in Towns, separate from Counties, are placed at a serious disadvantage, and one for which the present law does not furnish a satisfactory remedy.

6. That the exaction of fees from High School Pupils is not desirable.

Moved by Mr. Lusk, seconded by Mr. Clark,

That the Report be considered paragraph by paragraph.—Carried.

The Chairman having read paragraph 1, Mr. Dawson suggested that the word "pecuniary" be inserted before the word "support"; the paragraph thus amended was adopted.

Paragraph 2 having been read,

It was moved by Mr. Clark, seconded by Mr. Hicks,

That Paragraph 2, as read, be adopted.—Carried.

Paragraph 3 having been read,

It was moved by Mr. Anderson, seconded by Mr. Williams,

That Paragraph 3 be adopted.—Carried.

Paragraph 4 was adopted without a formal resolution.

Paragraph 5 caused considerable discussion. The chief point touched upon was, that as Towns, separated from Counties, obtained this separation at the time for the purpose of securing certain pecuniary advantages, and it was a voluntary act on their part, that they should not now complain.

Messrs. Hodgson, Jeffers, J. Miller, A. Miller, Orr, Dawson, Michell, Strang, Tilley, Turnbull, Tamblyn, Shaw, and several others took part in the discussion.

Paragraph 6 being read, a vote was taken, and a majority of one decided in favour of free High Schools.

It was then moved by Mr. Oliver, seconded by Mr. Hicks,

That Paragraph 6 be re-considered.—Lost.

The discussion on the mode of distributing the Government Grant was introduced, when the time for adjournment arrived, and it was agreed to continue this discussion to-morrow.

Section then adjourned to meet to-morrow at nine a.m.

Present at this Session :—

Messrs. McMurchy, J. Miller, A. Miller, Strang, Houghton, Lusk, Jeffers, Rothwell, Shaw, Orr, Michell, Earle, Cook, Tilley, Anderson, Hicks, Hughes, McHenry, Clark, Turnbull, Williams, Shortt, Dawson, De LaMater, Oliver, Hodgson, Dobson, Grant, Tamblyn, Crosier and Purslow.

HIGH SCHOOL MASTERS' ROOM,
Education Office,
Thursday, Aug. 15, 1878.

Section met at 9.30 a.m. Mr. McMurchy in the chair.

Minutes were read and approved.

Discussion on distributing the Government Grant was resumed. Mr. Seath opened the dicussion. In his remarks he pointed out some of the anomalies in the apportionment of that portion of the Grant which is distributed on the result of inspection. His impression was that few, if any, of the masters understood upon what basis the Inspectors proceeded in making the apportionment.

It was moved by Mr. Strang, seconded by Mr. Connor,

That the discussion on this matter be closed at eleven a.m.—Carried.

Mr. Purslow moved, seconded by Mr. Shaw,

That a Committee, consisting of Messrs. Seath, Dawson, Strang, Clark, Hodgson, and the mover, be appointed to consider the matter of distributing the Grant.—Carried.

While this Committee was engaged in considering this matter, the subject of University Consolidation was taken up.

Mr. McHenry introduced the subject, and strongly advocated its necessity.

He then moved, seconded by Mr. Houghton,

That in the interests of higher Education in Ontario, some practicable form of University Consolidation is highly desirable.—Carried.

The Committee now entered and presented their Report.

REPORT OF THE COMMITTEE ON THE DISTRIBUTION OF THE GOVERNMENT GRANT TO HIGH SCHOOLS AND COLLEGIATE INSTITUTES.

The Committee reported as follows :

1. That in the opinion of this Section the mode of distributing the Grant on the "results of Inspection" is unsatisfactory.

2. That the half-yearly apportionment of this sum should be based on the joint report of the three Inspectors at the end of each eighteen months : the Schools being then graded for the ensuing eighteen months.

3. That the Section would urgently press on the attention of the Minister of Education the desirability of carrying out the provisions of the Act to the effect that an allowance should be made for other examinations besides the Intermediate.

Mr. Dawson moved, seconded by Mr. Connor,

That the Report be received.—Carried.

Clause 1 having been read, was adopted.

Clause 2 having been read,

It was moved by Mr. Dawson, seconded by Mr. Fessenden,

That Clause 2 be adopted.—Carried.

Clause 3 was read and adopted.

The following gentlemen took part in this discussion :

Messrs. Houghton, Williams, Crozier, Fessenden, Seath, Connor, Bowerman, J. Miller, A. Miller, Turnbull, Purslow, Grant, Hodgson and Clark.

Discussion on University Consolidation was now resumed. The points chiefly touched upon were: the advantages to be derived; the impetus that would be given to higher culture ; the uniform value of degrees ; the relations between the High Schools and Universities ; the difficulties in the way ; and government support.

It was moved by Mr. McHenry, and seconded by Mr. Connor,

That a Committee be appointed to wait upon the Hon. the Minister of Education, urging him to request the authorities of the several degree conferring Universities to appoint, at an early day, representatives to a joint committee which shall mature some scheme of University Consolidation, with a view to securing the necessary legislation on this subject; and that Messrs. McMurchy, Seath, J. Miller and the mover be the Committee.—Carried.

Mr. McMurchy being called away, Mr. Seath took the chair.

It was moved by Mr. Strang, seconded by Mr. Turnbull,

That Messrs. Seath, A. Miller, J. Miller, Purslow, and Inspector Smith, be the Executive Committee for the ensuing year.—Carried.

Moved by Mr. Miller, seconded by Mr. Connor,

That the Committee on University Consolidation urge upon the Minister of Education the desirability of endeavouring to secure a uniform Matriculation Examination for all Universities and other examining bodies in the Province.—Carried.

Section then adjourned.

PUBLIC SCHOOL INSPECTORS' SECTION.

This Section was very largely attended, and the discussion of the several matters brought before the attention of those present was deeply interesting.

The following resolutions were adopted by the Section:

1. *Resolved*, That in the opinion of this Section of the Provincial Teachers' Association, the High School Entrance Examinations and the Examinations for 2nd and 3rd Class Teachers should be held at different times.

2. Whereas the office of Public School Inspector is largely executive in its character; whereas the Inspector is chiefly responsible to the Education Department for the efficient discharge of his duties, receives all his instructions from the Department and reports, legally, only to the Department; whereas it is undesirable that the Inspector's Office should be under the influence of Municipal and other Local Elections; and whereas the requirements of the law are necessarily in advance of popular education and popular feeling; therefore be it

Resolved, That in the opinion of this Section of the Ontario Teachers' Association the removal of Inspectors should be sanctioned by the Department before taking effect.

3. *Resolved,* That the Third Class Examination should be held at some time of the year other than the summer vacation.

4. *Resolved,* That in the opinion of this Section some change is demanded in the method of apportioning the legislative Public School Grant among municipalities, this change being specially necessary in the interests of the newer and more recently settled portions of the Province, to which grave injustice is done by the apportionment of the Grant on the basis of the census taken only every decade.

5. *Resolved,* That the possession of a university degree in Arts, from any British or Canadian University, and of a Public School Teachers' First-Class Certificate, of any grade, should qualify the possessor for a Public School Inspector's Certificate; and, that in future no man be considered eligible for such certificate unless he hold the qualifications above stated, or a First-Class Certificate of the highest grade.

6. *Resolved,* That the standard for non-professional Second B, should be the same as now for Second A, except as to age limitation, which should be the same as now for a Third; also, that the standard for Second A be sixty and forty per cent., instead of fifty, and thirty per cent. as at present.

The following were elected as the Executive for the following year:

Chairman—James C. Brown.

Secretary—John Dearness.

Committee—Messrs. Wadsworth, Scarlett, Carson, Johnston and Alexander.

J. R. MILLER, *Secretary, pro tem.*

THEATRE, NORMAL SCHOOL, TORONTO,

August 13th, 1878.

The first meeting of the Public School Section was held in the Theatre of the Normal School, Toronto, this morning. The Chairman of the Section, Samuel McAllister, took the chair at 10.30, and called upon R. McQueen, of Kirkwall, to read a portion of Scripture and engage in prayer.

The Chairman then delivered a short inaugural address, reviewing the work of the Section for the present session.

Mr. J. Suddaby, of Berlin, the introducer of the first subject on the programme was not present.

Moved by H. Dickenson, seconded by James Duncan, that the discussion on the subject be proceeded with.—Carried.

The subject, "Should Public School Teachers be represented on the Central Committee," was then opened for discussion.

After remarks had been made upon the question by Messrs. D. Johnston of Cobourg, H. Dickenson of Stratford, Grier of South Grey, D. Boyle of Elora, Neilly of Bradford, McPherson of Harriston, Miller of Goderich, F. S. Spence of Toronto, and Grey of Vankleek Hill,

It was moved by Mr. Johnston, seconded by Mr. Grier,

That a Committee be appointed to wait upon the Hon. Minister of Education and request him to grant representation to Public School Teachers on the Central Committee.—Carried.

Meeting adjourned at 12.30 p.m., till 9 a.m. on Wednesday.

H. DICKENSON, *Secretary.*

August 14th, 1878.

The Public School Section met at nine a.m. S. McAllister in the chair.

Opening exercises led by Mr. McQueen.

Minutes of last session read and adopted.

Mr. Suddaby explained why he had not been present on the preceding day. He understood the question he had been asked to introduce would not be taken up until to-day.

He moved, seconded by Mr. Grier,

That the Committee to wait upon the Hon. Minister of Education and urge upon him the carrying out of the views of the Public School Section regarding representation on the Central Committee consist of Messrs. Dickenson, F. S. Spence, D. Johnston, Goggin, and the mover.—Motion carried.

Mr. D. J. Goggin of Port Hope was then called on to open the discussion on "Model Schools."

An animated discussion took place ; participated in by Messrs. McPherson (Harriston), Dickenson (Stratford), Lewis (Toronto), Farewell (Thornbury), McQueen (Kirkwall), McKinnon (Meaford), Allan (South Grey), McKee (South Simcoe), Chapman (Berlin), Miller (Goderich), Suddaby (Berlin), Duncan (Windsor), Alexander (Galt), McLean (Milton), and Johnston (Cobourg).

A number of suggestions were referred to a Committee of the General Association appointed to consider this question.

A vote of thanks was unanimously passed to Mr. Goggin for his paper

Meeting adjourned till nine a.m. on Thursday.

H. DICKENSON, *Secretary.*

August 15th, 1878.

Section met. Mr. D. Johnston in the chair.

Rev. Mr. Grant read a portion of Scripture and engaged in prayer.

Minutes read and confirmed.

Moved by Mr. Grier, seconded by Mr. Allen,

That in the opinion of this Section that clause in the superannuation scheme which provides that teachers cannot retire from the profession until sixty years of age, unless disabled by sickness, be amended by introducing a clause giving them the privilege of retiring after an actual service of twenty-five years, without forfeiture of their claims on the Superanuation Fund.—Carried.

Mr. W. Rannie of Newmarket introduced the subject "Sub-Division of Examination Work of Public School Teachers."

After remarks on the subject by Messrs, Alexander, Barber (Durham), Dickenson, Moore (Vaughan), and McQueen, the following resolution was carried.

That in the opinion of this Section the subjects prescribed for First-Class Certificates be divided into three groups, and that when a candidate has passed a successful examination in a group, he should not be asked to write again on that group.

Moved by Mr. Rannie, seconded by Mr. Alexander,

That success in teaching should be regarded as of more importance in granting the higher classes of certificates.—Carried.

Moved by Mr. Morrison (Toronto), seconded by Mr. Chapman,

That the Public School Teachers repudiate the idea expressed in a paper read yesterday before the General Association, that Latin, French or German should become a substitute for the "Physical Sciences" in securing First-Class Certificates.—Carried.

Moved by Mr. Curtis, seconded by Mr. McQueen.

That the number of extracts in English Literature to be prepared by candidates for Third-Class Certificates, and for entrance into High Schools should be reduced.—Carried.

The opinion of the Section was also given against permanent Third-Class Certificates being granted by the Department, except under very exceptional circumstances.

The Officers elected for the ensuing year are

Chairman :—D. Johnston of Cobourg.

Secretary :—Wm. Rannie of Newmarket.

Executive Committee :
R. Alexander of Galt.
J. Munro of Ottawa.
J. Suddaby of Berlin.
J. Hughes of Toronto.

A vote of thanks was passed to the retiring officers for the care taken in getting up a programme for the present meeting, and for their services generally.

H. DICKENSON, *Secretary.*

PAPERS READ

BEFORE THE ONTARIO ASSOCIATION

FOR THE ADVANCEMENT OF EDUCATION.

◆

PRESIDENT'S ADDRESS.

RECENT EDUCATIONAL CHANGES AND THE PRINCIPLES THEY INVOLVE.

Important educational reforms have been introduced during the last seven years, and I have thought that some observations on these and the principles they involve would not be out of place on the present occasion. I shall consider, first, the changes directly affecting the Public Schools, and secondly, those more immediately affecting the High Schools.

I.

It is not necessary to enter upon an elaborate statement and vindication of the principles which underlie our entire educational system. I may remark, however, that it aims at being thoroughly national in character. It assumes that the intellectual life of a nation does not depend on the education and culture of a single class, but upon the enlightenment of the masses, and that no individual, and no associations of individuals, should be entrusted with the sacred work of popular education.

The eminent man whose life and energies have been devoted to the foundation and development of the system, has ever been guided by the broad principle—now accepted by the liberal thinkers and far-seeing statesmen of every land—that *Schools and Colleges are Institutions of the State.* This principle, which declares it to be the duty of the State to educate its citizens, is the outgrowth of a clear perception of the relationship between the individual and the State.

This relationship, as exemplified in every truly national system of education, is not one of police, but one of guardianship. The state provides for the education of the citizen, not as a matter of charity, but as a matter of justice; and the citizen not only has a right to demand but is under obligation to receive the education which it is the duty of the state to provide. Only when this principle of reciprocal rights and obligations is practically acknowledged can there be a thoroughly national system of education, and only under such a system can the highest results be reached in the material and intellectual advancement of the nation. Such a system is ours. It presents a properly organized scheme of national education from the most elementary to the highest stages. It has made the highest accessible to all, and it aims at making the lowest imperative on all. Such an organization can be effected, and worked with the highest attainable success, only under a proper system of municipal government. It is not possible for the central authority to do all that effective administration requires ; it would not be wise even if it were possible. There are some matters that must be left entirely under the control of the central authority ; there are others that should be left to the local authority. In our system the central authority has wisely invested the local authorities with the highest powers consistent with the necessary unity of aim and method, and has used every available means to encourage liberality in local legislation. Now, I suppose it is peculiarly the function of the central authority (1) to provide the requisite supply of properly qualified teachers, (2) to prescribe the courses of study to be pursued in the national institutions, and (3) to provide for the proper supervision of these institutions. In these three particulars have occurred the most important of the recent reforms to which I propose to direct your attention.

(1.)—AS TO THE FIRST POINT. *(a) There has been instituted an effective plan of examinations to test the literary attainments of all candidates for the teachers' profession.*

Since the teacher makes the school, one of the highest aims, if not the very highest, in every system of national education, is to secure good teachers—teachers who have the requisite scholarship, as well as culture and professional skill. And, beyond question, the proper test of the necessary scholarship is to be found in an examination conducted by the central authority, on subjects prescribed by the same authority. In other words, there should be a uniform system of examinations. Local authorities, such as township or County Boards, or Boards of School Trustees, ought not to be entrusted with the important work of determining the qualifications of teachers. In some of the States of the American Union the want of a uniform State system of examination proves a serious injury to the cause of education. Examinations, we are informed, may be conducted by the State Superintendents, by city superintendents, by Boards of trustees, or by county commissioners of schools. Under such an absence of system the standards of attainment and the methods of examining "are almost as varied as the individuals conducting the examinations." And when, as not unfrequently happens, the examiners are not only deficient in scholarship, but profoundly ignorant of all that relates to the principles and practice of education, the results afford no evidence of the candidate's scholarship or professional ability. "Perhaps some peculiar vagary or conceit of the examiner, who may be a physician, or merchant, or farmer, or mechanic, or lawyer, is made to serve as a procrustean standard by which the merits and defects of all that present themselves are judged."

Some such method as this prevailed in Ontario when the examinations were in the hands of the County Boards. The subjects for examination were, indeed, prescribed by the Department of Education ; but the mode of conducting the examination, and the standard of qualification as fixed by the examination papers, were determined by the separate Boards. There were forty of these examining boards ; and there were, it is no exaggeration to say, just forty different standards. The possession of a County Board Certificate was therefore no sure evidence of scholastic proficiency, or of professional skill. The results were pre-eminently injurious to the interests of education. There was not sufficient discrimination between the worthy and the unworthy—between the devoted teacher and the hireling. The able and conscientious man who devoted himself to thorough preparation for his life-work, was rudely jostled by the illiterate self-seeker, whose exigencies had driven him to teaching as a temporary make-shift. Hundreds who had neither the proper qualifications nor any intention of acquiring them, rushed into the teaching profession. The open door was an irresistable temptation to those who wished merely to make teaching a stepping-stone to "something higher," or rather to something that paid better.

It was high time, then, that a change should be made, and accordingly the amended law of 1871 inaugurated the much-needed reform. Through the operation of that Act, the standard of literary qualification has been greatly raised, and the examination itself made a real test of proficiency in the subjects prescribed. This is one of the most important steps that have yet been taken in the interests of the public schools. Speaking generally, it may be said that the third-class certificate of to-day is a more certain evidence of scholarship than the First-class County Certificate of former days. Many persons have been obliged to abandon a profession for which they were quite unqualified ; while many more, equally unqualified, have been excluded from its ranks. Thus the schools of the country are now in better hands than formerly ; our teachers are better scholars, better managers, better instructors—better educators—possessed of clearer and nobler views of the nature of education, and inspired with a lòftier enthusiasm for the great work in which they are engaged.

There can be no doubt, too, that the reform under consideration will go a long way towards elevating the teacher's calling to the dignity of a real profession. The dunce and the laggard will hardly attempt our strict examinations. The man possessed of a mere smattering of learning, sufficient perhaps for entrance into some of the "learned" professions, but utterly beneath the requirements of a good public School, will be forced to resort to other fields and "pastures new" for the means to win the object of his ambition : he will not be allowed to try his prentice hand upon our children, inflicting, perchance, a remediless wrong on the immortal natures committed to his care.

It was thought by some that the somewhat sudden increase in the difficulty of the examination might work injustice to meritorious teachers, and that the standard fixed, especially for Third-class Certificates, was much higher than was actually required in view of the work to be done. But the regulations, while observing the spirit of the law, have not been harshly, or indiscriminately enforced. Special cases have received full consideration, and the deserving teacher who really desired to remain in the profession and to qualify himself for its work, has met with every encouragement. In short the late Chief Superintendent and the present Minister of Education, have carried out this great reform with so much foresight and kind consideration of existing difficulties, that not a single case can be cited in which any injustice has been done.

I cannot admit that the standard of qualification for Third-class Certificates is unnecessarily high. Surely it will not be argued that a teacher's knowledge may be limited to what he has to teach—that the minimum of knowledge prescribed for the pupil may be wisely fixed as the maximum for the teacher. This would imply a very narrow view of even primary education. Is the instruction given in the public schools to have any educative value or is it to be merely mechanical? Mark the position taken :—The child is to be taught the elements of reading, writing and arithmetic ; the teacher can read, write and cipher, therefore he is qualified as an *educator*. A narrower view than this of a great subject, it would be impossible to take.

These elements are, of course to be taught ; and taught by the accomplished teacher, they may, even in themselves, have some educative value ; though with such a teacher, they are chiefly means to an end. But the illiterate teacher does *not* regard these elements as means to an end ; in his view they constitute themselves the end—the "be all and the end all" of his irksome task. They are taught mechanically, their acquisition is mechanical ; and as for true education, there is absolutely none. The teacher is himself without interest in the subject which he feebly comprehends ; his own powers having not been awakened to vigorous action, he possesses but little of the life-awakening force, and none of that lofty enthusiasm which comes from a broad view of education, and a deep sense of the responsibility that rests upon the educator. If there is to be, in our public schools, any education at all worthy of the name, the teacher must be a man of "considerable education and culture, possessed of a clear insight into human nature, and well acquainted with the best methods of training." It is, therefore, no argument to say that because, in the primary schools, the quantity of knowledge to be imparted is small, the most meagre attainments on the part of the teacher will suffice. On the contrary, just because the quantity of knowledge is small, the quality of the instruction should be of the highest order. It is not the amount of information, but the method in which it is given that is of value here ; not the imparted facts, but the quickened intelligence, "not the truths and principles mechanically conveyed, but the living abiding impressions produced on the soul. The child is to be trained towards the perfection of manhood ; his nature brought into the fullest activity on all sides, and his powers developed in an equable and harmonious completeness so far as time and circumstances permit." This view of education is not an ideal one which we may fondly imagine, but never hope to realize. It is easily within the reach of the earnest, cultivated teacher ; it is far beyond the vision of the crude empiric whose fitness for the teacher's high vocation is measured by an imperfect knowledge of the mechanical *trivium*—reading, writing, ciphering. The child, then, is to be EDUCATED, and only the educated man or woman can do the noble work. The country has awakened to this true view of the aim and object of education, and has proposed a comparatively high standard for the intending educator. The standard may be thought high as compared with that of former times; but not too high to ensure efficiency on the part of those whose inefficiency might work an irremediable wrong; not too high, when the country has placed its easy attainment within the reach of average industry and ability. If any one has not average industry and ability, he has no business in the ranks of the highest of all professions; giving place to better men, let him dig, if "to beg he is ashamed," or study law, or plough, or swing the woodman's axe, or try his hand at any honest calling, in which if he prove not an expert, at least his blunderings will not be disastrous to the highest interests of the State. They seem to me entirely wrong, then, who take the ground that, while first and second-class teachers ought to possess comparatively high scholarship, from third-class teachers ought to be exacted only the bare elements of knowledge. For, though a better state of things will doubtless soon arive, as yet a majority of the teachers are of this class, and therefore the work of education is still too largely in unskilled hands. No one can desire that this serious deficiency in our educating power should become permanent. It is plainly the ultimate object of the law to have the schools in charge of only well-qualified instructors. Those holding the lowest grade of certificate must rise to a higher plane; the worthy among them, whom I believe to be the vast majority, will strive to reach that higher plane,—the unworthy must give place to more earnest or more able men.

And is there any injustice in requiring the teacher to more thoroughly qualify himself for his work—to manifest in himself a little of that intellectual life which he is to communicate to others? With the extraordinary facilities for receiving both literary and professional training which a liberal country has supplied—with all the incentives to progress which surround him on every hand—what plea can be offered for the laggard who refuses to bestir himself? "Labour is life, who works not lives not," is a changeless law from which neither mind nor body can escape.

The teacher who makes no progress, who is animated by no earnest search for truth, can have no vigorous intellectual life. Having nothing in himself of that quickening force, whence can he have his vivifying power? Having no self-activity in his own spirit, how can he create it in the spirit of another? The teacher exerts a mightier influence by what he is and by what he does than by the words he utters or the information he imparts.

"It is the unconscious *life* in a man that most influences us." It is the unconscious *life* of the teacher that produces the most lasting impressions. "He communicates to his pupils a large amount of himself—of his own spirit, of his own character, of his own-life." Dead himself, he communicates death. He drags his pupils through a dull and dreary routine, "drugging their minds with unprofitable facts—making them read and commit to memory without once introducing them into living contact with the thoughts,"—without once touching the moral nature, or arousing the intellect to activity. I am sure, no true teacher will take the low ground that "anything will do for the ordinary public school," and that, especially the attainments represented by a third-class certificate are sufficient for his work. And I venture to express the opinion that no true friend of education will be found advocating principles or supporting a policy whose permanent triumph would smite the country with a lasting curse.

(b) Scholarship alone is not sufficient to make a true teacher. A man may know much of mathematics, science, literature—this is indispensable; but to be a successful teacher, there is a co-ordinate qualification—he must know how to organize, how to govern, how to teach, in short, how to *educate*, and therefore *a second great reform is that which makes further provision for the professional training of teachers.* When we speak of professional training we imply that there is a Science of education. That there is such a science has been maintained by some, denied by others. Mr. Lowe, for instance, ridiculed the proposal to establish a "Chair of Education" in the University of Edinburgh, because, as he asserted, there is no science of education. But it appears to me that the proposition requires little more than to be fairly stated in order to command assent. Are the conscious efforts of the teacher to develop the mental activities of his pupils mere crude experiments, knowing no law, or order, or definite aim? Education is, or ought to be, no more a series of hap-hazard experiments than, for instance, medicine. Instruction I suppose, is an art; but as an art it is the application of systematic principles derived from investigations of the laws of mental action. Education and medicine are both practised as arts; but they are equally the practical application of general principles—the one being, we may say, applied physiology, the other an applied psychology. Without, however, entering upon a full discussion of the question, it is enough to say that there are certain laws regulating the activities of the human mind—that some of the most important of these laws have been discovered and applied in education—and that a knowledge of them reveals right methods of instruction, and guides the teacher in the work of true education. It follows that all teachers should be thoroughly familiar with the principles of education, and as far as possible skilled in their application. For, as we have quacks in medicine, so we have empirics in education; and if the community is to be protected against the former, how much more against the latter? If we have a salutary dread of those who may kill, or maim, or enfeeble the body, with what feelings should we regard those who have a similar treatment for the soul?

The absolute importance of professional training for teachers has been all but universally acknowledged. The ablest statesmen in every civilized country which has undertaken the education of the masses at the public expense, have used all efforts to establish institutions to supply such training. In 1875 there were in Great Britain thirty-eight normal schools, in France, eighty-six, and in Germany, 174. Our first Normal School was established in 1847, and unquestionably has exercised a powerful influence on the education of the country. But during the earlier years of its existence its chief work was—not to give its students that professional training which it is the principal function of a Normal School to impart—but to prepare them for passing the prescribed literary examination. This was unavoidable, inasmuch as there were but few schools in the Province that were at once easily accessible, and able to give the requisite literary training. But the High Schools have, in recent years, so greatly improved that they now can give the highest literary training that the teacher may require. Accordingly a change became practicable, and was promptly made. Second-class teachers, whose training had occupied nearly all the teaching power of the Normal Schools, must now acquire the requisite scholarship and pass the prescribed scholastic examination before entering these institutions, which are thus placed in a position to discharge with efficiency their principal function, in imparting a sound knowledge of the principles of education and a large measure of practical skill in their application.

But something further was required. It was found that about nine-tenths of the teachers of the country had received no systematic training in the art of teaching. The great value of professional training had been clearly shown in the generally superior teaching and management of those who had graduated at the Normal Schools, and from all parts of the country came a demand for trained teachers. The existing Normal Schools could not meet the demand ; the requisite number of additional Normal Schools could not be established without an enormus expenditure, which our people, with all their liberality in matters of education, would have been, perhaps unwilling to sanction. It became necessary, therefore, to devise a more simple and less expensive scheme to enable teachers to acquire a certain amount of professional knowledge and intelligent experience. The system of County Model Schools was accordingly established, and it at once met with a large measure of popular favor. These schools are, in effect, inexpensive County Normal Schools—certainly not capable of doing all that we have a right to expect of a fully equipped training college—yet able to do, and, I hesitate not to say, actually doing a work which will tell with powerful influence on the public schools. I do not say that they are yet all that they ought to be ; I do not say that the Normal Schools are doing all *they* ought to do ; there is without doubt, room for improvement in both these classes of schools But I say that both are doing a great and noble work, and that the moral and intellectual influence of the trained teachers they send forth will tell with incalculable effect on the rising generation.

The time at my disposal prevents more than a brief reference to the subject of Teachers' Institutes. They are when properly conducted, a most valuable auxiliary to normal and model school training. They are, on the whole, well conducted in Ontario, as I have had ample opportunity of witnessing. Their success depends largely on the Public School Inspectors. And I have pleasure in publicly stating my belief that the ability, energy and earnestness—not to say enthusiasm—which characterize the great majority of our inspectors, are nowhere more clearly seen than in the successful working of these valuable agencies in our educational work.

(2) IN THE SECOND PLACE, in order that the objects of national education may be as fully as possible attained, *a judicious course of study is of paramount importance*. What the extent of such a course should be, and what subjects it should embrace, are questions that have been widely discussed and variously answered according to the views held of the aim and scope of popular education. If its object is to put the pupil in mechanical possession of the barest elements that may assist him in making a livelihood, the course will be a narrow one, consisting of but three subjects, reading, writing, and the elements of arithmetic— since, on the utilitarian theory, these are the

"knowledges" that are of most worth, and the only ones that the common citizen requires. But, as has been already said, the aim of Primary education is not confined to this; the child is to be *educated;* he is to be treated as an intelligent being, whose wonderful activities, so far as certain limitations of time and circumstances allow, are to be aroused and strengthened. No doubt, *useful* knowledge is to be imparted, but in such a way as to influence life and character. From a low view of the aim of education, the child's whole nature may be grievously wronged by the meagre programme and the blundering teacher. On the other hand, subject to truly educating influences in the impartation of even elementary knowledge, his plastic mind may receive impressions which shall outlive the rough battle of his humble life, reacting on the family and all the social forces.

Assuming, then, that the higher view of popular education is the correct one, two things are to be kept in view in the arrangement of a judicious course of study—the value of the subjects in *discipline* and their value as *knowledge*, or, in other words, practical utility. Doubtless there are subjects which are *practically* of little worth, though they may have a high value as instruments of discipline. But, for the purposes of Primary education, those should be selected which at once are valuable in discipline and practically useful. This has been done in arranging the course for the Ontario schools. Language, Elementary Mathematics, History and Geography, Elementary Science, Writing, Drawing and Music. All these are of high value, whether regarded as means of culture or sources of useful information. It will be admitted, also, that in the order of arrangement; in the number of subjects prescribed for simultaneous instruction, in their sub-divisions into grades—in a degree of flexibility which leaves a reasonable latitude to both teacher and pupil—in all these essentials the new programme, while not above criticism, is a great improvement on the old. But can these subjects, or the most of them, be taught in the efficient public school? Do they fairly indicate what such a school may be expected to accomplish? I answer in the affirmative. The child enters school at six years of age, we will say, and remains till he is fourteen—what teacher will maintain that all the intervening years are to be spent in learning to "read, write, and cipher." This indeed has been, and is still, too often done—because the teaching has been too often done in dense ignorance of the plainest laws of mind. The most precious years of the child's life are wasted—or worse than wasted—in a drudgery of barbarous routine—a torturing tread-mill with the ceaseless alterations—reading, writing, ciphering; reading, ciphering, writing; ciphering, writing, reading, and so on through all the dreary years.

But more excellent methods are beginning to be found, and will soon generally prevail. No intelligent teacher will argue that *one-third* of the child's school life must be given to learning the elements of Arithmetic, and as much more to the mastery of the few English words he is concerned to know. Let rational methods of teaching be followed, and our children will become better Arithmeticians, and better readers in half the time that these branches have usually consumed; and the other half thus wisely and economically—not to say *humanely*—saved, may be devoted to other and equally important subjects of the course.

But admitting that the course of study is quite within our reach, is it necessary--is it expedient—to give the children of the masses so liberal an education? To this question, if the views of popular education already set forth are sound, there can be but one answer. Once more, it is the great aim of the Public School to place within the reach of all a course of education sufficiently extensive and thorough for all the ordinary pursuits of life, and to create a national intelligence which shall be effective in national progress. That national intelligence is an essential element in national advancement, is a proposition that will hardly be questioned even by those who are constantly magnifying a purely practical or industrial education at the expense of intellectual education. The attitude of man in nature is one of perpetual struggle with the forces of nature, and human progress is mainly the triumph of intelligence over matter and material phenomena. Man interrogates nature; he passes in review her grand domain; he demands the surrender of her secrets and her treasurers; and nature, recognizing the voice of her appointed Master, and answering, obedient to the imperial summons, enlarges his understanding by a revelation of her mysteries and pours her richest treasures at his feet.

All that has been discovered in the region of science, all that has been invented in the industrial arts, has been discovered and invented by the exercise of mind Can it then be fairly maintained that intellectual education is of little worth in material progress? Shall the inventive mind lose its ingenuity, and the skilled hand its cunning when guided by intelligence? Nay, the increase of popular intelligence ensures material progress and national power—the wider diffusion of liberal education, means more splendid achievements in all the industrial arts and in all the realms of thought. The very spirit of national education is that it places within the reach of every man the means for the harmonious development of the powers with which he has been endowed. All talent, all genius, is useful to the community at large; and the liberal course of study adopted for the schools will bring to light hands that may sway "the rod of empire, or wake to ecstasy the living lyre."

3. IN THE THIRD PLACE. *A completely effective system for the supervision of the Public Schools has been established.*

In every complete organization of public instruction, a system of thorough supervision is essential. Good teachers are indispensable; good inspectors are equally so. They must be men of education and of large experience. It is not their chief duty to regard teachers as suspicious characters, who need the attention of a severe police; but to see that the regulations for the management of the schools are properly carried out, and that rational methods of instruction are followed. The qualified inspector is in thorough sympathy with the earnest teacher—gently pointing out his errors, assisting him in difficulties, praising with pleasure, and censuring with regret.

One of the greatest defects, if not the greatest—in our educational system was the want of proper school supervision, and, therefore, the institution of the present system constitutes one of the most important of our educational improvements. Instead of a perfunctory discharge of duties, for which, under the old plan, the superintendent had but little fitness, and but little sympathy, the proper fulfilment of the duties of an inspector now requires high literary attainments, a long professional experience and an entire consecration of time and energy to the work. By the new system the schools in each inspectorate are placed under the supervision and, to some extent, control of an officer whose duty and ambition it is to see that all parts of the system, of which he is the head, are harmoniously and effectively worked. The standard of education is thus raised ; for in every school are introduced method and discipline ; the weak points are noticed and gently corrected ; irregularities checked, vicious modes of teaching banished from the school room ; order and control introduced. The teacher feels that his work comes before one on whose judgment he can rely. Knowing that the results of indifference, laziness, or slovenly teaching, cannot escape the searching eye of his inspecting officer, even the careless teacher is quickened into some semblance of life. On the other hand, the really able and earnest teacher, feeling that energy, industry and earnestness are sure to be acknowledged, is encouraged to qualify himself yet more fully for his vocation.

Trustees are more confident in the discharge of their duties, when they know that within easy reach they can secure the advice of a competent officer, and when they can ascertain on the occasion of his visits the quality of the work done in their schools—its faults and his excellencies. The people have a guarantee that under the control of an officer of experience and wisdom, their school system for which they pay so much, and on which so much depends, will attain to a high degree of excellence, and that too without the sacrifice on their part of any necessary rights or powers. And lastly, the Government can expend its vast sums for the education of the rising generation, with confidence and security and at the same time with justice, only when it possesses such data and information as systematic inspection can supply. These benefits were, to some extent, secured by the old system of township inspection, and perhaps no other mode was practicable at the time of its inception. But we have at last been able to establish a more thorough system, and I believe that with some slight amendments, it will secure all the advantages which flow from a complete supervision of the schools.

II.

The establishment of Primary Schools would be comparatively unavailing without proper provision for secondary education. In every national system worthy of the name, the state has provided a well organized system of High Schools. In fact, where education is regarded as a national duty, all treatment of the question must have reference not to one class of the community but to all—not to the elementary schools merely, but to the High Schools and the Universities also—the entire series of institutions being adapted to all classes of the people, and forming a united and harmonious whole. No objection can be urged against provision for higher education by the *state* that will not tell with equal force against provision for primary education. "I will thank any person," says a great American statesmen, "to show why it is expedient and beneficial in a community to make a public provision for teaching the elements of learning, and not expedient or beneficial to make similar provision to aid the learner's progress towards the mastering of the most difficult branches of science and the choicest refinements of literature." "No system of public education," says Huxley, "is worthy of the name of national unless it creates a great educational ladder with one end in the gutter and the other in the University." These are the principles that have enabled the great statesmen of Germany to found and develop a system which is the admiration of the civilized world. When Prussia had been reduced to the verge of ruin by the ravages of Napoleon, her great men, summoned to their country's aid in the darkest hour of her history, saw in education the means of her salvation. It was declared—it became an article of the nation's faith—that most was to be expected from national education—that under methods of instruction based upon true conceptions of the moral and intellectual nature of man, a race physicially and morally strong would grow up and a better future dawn upon the nation. And her marvellous success in every field of human activity vindicates the foresight of her statesmen and the soundness of her people's faith. On such principles as these has national education in Ontario been organized. "A national system," says Dr. Ryerson, "must include within itself a systematic and complete gradation of schools from the lowest Elementary School up to the University itself, without a missing link or break in the chain." The benefits derived from a national organization of secondary education are very great. It is essential to the existence of an efficient system of public schools, it places a liberal education within the reach of all who have the capacity to receive it, and brings to light genius and talent which otherwise would lie "mute and inglorious."

There can be no doubt that the efficiency of our High Schools has greatly increased since 1871, and I shall refer to a few of the changes to which this is to be chiefly ascribed. In the first place, through the pressure wisely exerted by the Department, a greater number of masters is now employed, though the number of schools has slightly diminished. In the year mentioned very few of the 107 schools employed more than one master ; now there is an average of three masters to each of the 103 schools. Some schools that formerly had but one master now have four, and there is not a single instance in which *one* master is found attempting the stupendous task of teaching all the subjects of the curriculum. Thus we have better classification, better discipline, better teaching, greater industry on the part of the pupils, and, on the whole, a state of efficiency incomparably in advance of that of former days.

In the second place : I have no doubt that the action of the Department regarding Union Schools, and the qualifications of masters, has been attended with good results. Thirdly, the Entrance Examination and the Intermediate have produced so marked an influence that they deserve more than a passing notice

All experience had shown the necessity of a change, both in the standard prescribed for entrance and the mode of conducting the examinations. Boys and girls possessing a mere smattering of the elements of a public school education had been allowed to swarm into the High Schools to swell the average attendance, and increase the grant from the public treasury.

The consequence was that the character of the public schools was greatly impaired, while many of the high schools, far from doing the work for which they were designed, might be said to have a local habitation and a name, but nothing more. It became necessary therefore to institute a more rigid examination and to make it uniform for all the schools. This was done ; and the excellent results of the change are universally admitted. Justice has been done to the better class of schools at whose expense many of the inferior schools drew large sums from the public funds—not a few of the low-grade schools have been raised to a higher plane—the really good schools have become still better, and new life has been infused into the public schools.

The Intermediate examination, though it has not been so long in operation as that for entrance, has told with great effect on our High Schools. It was instituted, as is well-known, at a point about midway between the beginning and the end of the High School course. It is not a competitive, but a qualifying examination : it has been established to render the work of inspection more definite and thorough, and to enable the Department to apply the principle of payment by the results. It is really an *inspectional* examination. The questions being, for the most part, prepared by the Inspectors who are familiar with the amount and character of the work done in the various schools, the examination is in all essential particulars, such as an able teacher would prescribe to test the proficiency of his pupils.

I believe that properly conducted written examinations form a most valuable element in every well organized system of public instruction. They not only afford a necessary test of the amount and thoroughness of the work done in a given time ; they also possess a high educative value. Every teacher, of course, examines orally ; teaching and oral questioning go hand in hand ; teaching is what the school-boy needs ; mere lecturing may do for the University student—though even in his case, less talk and more socratic teaching, would be greatly to the purpose. But oral examination is not enough ; there must be frequent written examinations if the best results are to be secured. The teacher, for example, goes over with his class the work prescribed for a given time. Does he rest satisfied with oral questioning merely ? Does he not know that the hasty questions given in class examination cannot test the pupil's knowledge like the carefully prepared questions of the written paper ? Does he infer that, because the general answering of the class during recitations has been satisfactory, they are thoroughly masters of the work gone over ? On the contrary, he resorts to his written tests, at once fair and uniform, and on the results of these he determines the actual proficiency. He can judge from these whether he has attempted too much or too little in a given time ; or whether, as sometimes is the case, his teaching has been at fault. For if the examination proves a comparative failure, he concludes that he has attempted too much, or that his teaching has been defective, or that his students have been less able and industrious than he had given them credit for. It not seldom happens that the ambitious teacher, animated by a laudable desire to have his school distinguish itself at an examination, attempts too much work within a given time—as when a master, in a few months, hurries a class over all the work prescribed for the "Intermediate." Or the failure may be due to defective teaching. Clever and industrious students, we will suppose, have decidedly failed. Then the conscientious teacher will enquire whether the fault is in himself. Knowing a subject well himself, he often overlooks the fact that what long familiarty has made mere axioms to him, presents real difficulties to the learner. Or there may have been some fault in his *method*, and a careful examination of his pupils' answers, and comparison with his actual treatment of the subject, will enable him to detect his error, and for the future adopt a better method.

But further, the educative value of written examinations is very great. "I assert," says Prof. Jevons, "that *examination* is a main element in training." It represents the active use of the faculties as contrasted with that passive use which too often resolves itself into letting things come in at one ear and go out at the other ; examinations excite emulation in the active and able ; they touch the pride even of those who do not love knowledge much, but still do not like to write themselves down absolute blockheads ; and they are themselves an exercise in English composition, in the control of thoughts and the useful employment of knowledge. Examination is education. It is not merely that which goes into the eyes and ears of a student which educates him ; it is that which comes out of him. It is said that to know a subject one must write a book on it. No one certainly knows himself master of a subject till he has re-produced it. So no student is certain that he is really master of a subject, or a portion of a subject, till he has passed an examination on it. Every teacher remembers how often he was deceived in his own student days ; how often after listening to an exposition of his lecturer, or reading a demonstration in a text book, he thought he had made it thoroughly his own, till his self-deception was revealed in a humiliating attempt to *reproduce it as his own*. In short, written examinations give a thorough mastery of the subject, prevent the student from sinking into an attitude of mere passive receptivity – educate to logical habits of thought, and clearness and precision of expression. They are, as Prof. Jevons says, "the most powerful means of training the intellect."

The Prussians, even more than ourselves, are a great people for examinations, which really constitute an important feature of the system of education. Entrance into the learned professions, the civil service, and nearly all public offices, depends upon them. They, like ours again, are *school* examinations, and are always tests of the school or university training. The State has a guarantee that the candidate has had a sound intellectual training. In the various classes of the German High Schools, an examination always takes place before a scholar is allowed to pass from a lower class to a higher, and certificates are given on passing. These certificates are guarantees of competency which not only the State and public corporations, but business firms and others, require from applicants for admission into their service. The certificate from *Secunda* or *Tertra* is required by many merchants and by the Government for the Civil Service ; such a certificate is now almost indispensable for any young man about to enter a mercantile life.

Every effort should be made to make our Intermediate and other educational certificates highly valued by the Government in determining appointments for the Civil Service—by the learned societies, by the universities, and by the public at large. Already something has been done in this direction. The Intermediate Certificate has been made equivalent to a second-class non-professional certificate; Victoria University was the first to accept it, *pro tanto*, in her mactriculation examination, and Queen's has quickly followed her example. These Universities deserve, and I am sure will receive, the hearty commendations of all friends of education, for lending their powerful influence to promote the great work of secondary education. The High Schools thus receive very great encouragement from these denominational Universities; are they treated with equal consideration by the "National" University?

I may remark, while upon the subject of examinations, that perhaps one more may be tolerated—namely, a High School *Leaving* examination similar to the *Leaving* one of the German Gymnasia, the most famous of them all. We have an Entrance Examination and an Intermediate; why not have, in time, a final examination at the completion of the High School course? I should be strongly in favor of such an examination if the example of Germany could be followed, which makes the *leaving* certificate *necessary* and *sufficient* for matriculation in any of the Universities.

And now a few words in conclusion.

We may well be proud of our noble system of national education. Theoretically almost perfect in its organization, it is rapidly, I believe approaching a degree of efficiency which will leave it without a rival among the nations. It is already multiplying the elements which are effective in material progress, and creating that national intelligence which shall lay broad and deep the foundations of national liberty. But great things are yet to be done, and their accomplishment rests in the teachers' hands. The system may be as perfect in theory as human genius can make it; but it must fall far below its high ideal without its army of able and devoted teachers. You are workers in the grandest field of effort that ever engaged the heart and intellect of man. Daily, hourly—through earnest, conscious effort, and still more through the silent, ceaseless influence of the unconscious life—you are leaving impressions which are ineffaceable, you are touching chords that shall vibrate for ever. Imbued by somewhat of that enthusiasm for humanity which characterized the Divine Man, it is yours not only to awaken intellectual life, but to touch the moral and religious nature—to inspire a reverence for that divine *spirit* of the Gospel, which, rising in imperishable grandeur from the warfare of dogmas, "is silently and gradually operating with ever widening, humanizing and enlightening influence on the destinies of mankind."

On the self-sacrificing efforts of the teachers throughout this great Dominion largely depends the destiny of our country. Shall it have a glorious future or stand, after a brief semblance of life, a "skeleton among the nations?"

We believe a grand future is before us. We have been called to a great inheritance and entrusted with an exalted mission among the peoples of the world. Never was nation more splendidly endowed with the elements of a vigorous life, never was national birthday ushered in under brighter auguries for future greatness. We have a climate, under whose invigorating influence is attained the highest degree of physical and intellectual life. We have a geographical position affording unsurpassed facilities for achieving maritime and commercial greatness; we have a rich exuberance of material resources for the rapid development of all the industrial arts; we have in our fertile plains and valleys, "ample room and verge enough" for the support of a mighty population. We have more than this. We have all the high instincts and all the manly qualities that distinguish the British race, whose valor and whose genius and whose love of liberty, consecrated ever by the spirit of religion, have made them the leaders in the grand march of humanity. We have more than this: The rich heritage of Britain's history is ours; we share in the renown of her immortal deeds; her glory is reflected from our national escutcheon; the spirit of her illustrious dead inspires us to high purpose and heroic endeavour. We reflect on her gallant conflicts with despotism, her splendid achievements in science and literature, and all the priceless triumphs in civil and religious liberty she has won for the human race, and we are lifted to the requirements of a grander destiny, and impelled to strive for a future worthy of so magnificent a past. We have more than this: The English language is ours, by no means the least valuable element in our peerless heritage; it is of all living tongues the noblest vehicle of human thought; it is the language which no nation can speak and remain enslaved—the language of liberty, of science, of religion—the language "which stronger far than hosts that march with battle-flags unfurled goes forth with FREEDOM, THOUGHT, and TRUTH to rouse and rule the world." We have more than this: The accumulated wisdom and experience of all past ages of the world are ours. To Egypt descended only the civilization of the East; Greece inherited that of Egypt and transmitted it purified and enlarged to Rome, which in turn bequeathed modern civilization to the world. *We* enter, therefore, upon our national career with the light of all the past beaming on our pathway "the heirs of all the ages in the foremost files of Time." We have more than this--immeasurably more—effective in national development, more fruitful of national happiness, more conservative of national greatness, we have institutions enshrining the very genius of liberty—founded on the great principle of human brotherhood and equal rights to all. And we have that pure religious FAITH, which exercises upon all other elements of national life a purifying and a vitalizing power, and without which, no nation can win enduring greatness.

If, then, we are true to ourselves, a grand future lies before us. No power can quench that spirit of enterprise, that love of liberty, that universal intelligence, that religious zeal which characterize our race and which guide and impel us onward in an ever-brightening pathway. Sublime destiny! I seem to hear the tread of the uncounted millions coming up to the possession of this great Canadian zone. They are millions of the truly noble whom virtue and intelligence have ennobled; millions of the truly free whom the truth of God has made free. Their lineaments are the lineaments of the British race, their speech is the speech of freemen—the noble tongue of England—In a mighty chorus of voices, like the sound of many waters, I hear the melodies of a divine religion blending with the songs of liberty. I look, and visions of a beauteous land break upon my view. The fairer forms that cultivation glories in have been won from the savage wilderness; the genius of intelligence has breathed over the solitary places, a thousand forms of beauty have started into being, and the song of civilization has broken on the immemorial solitudes. Throughout the boundless extent of our rich domain the workshops of industry have risen in thousands, where the genius and skill of myriads of artisans are daily added to the national wealth. I see Schools and Colleges so increased in number and efficiency, that the blessings of a liberal education have become universally diffused, and ignorance finds no lurking place in all the happy land. I see political institutions become as nearly perfect as anything of human origin can be, and all the great purposes of government accomplished with the simplest machinery. I see politics lifted from the mire and invested with unwonted dignity. I see pure laws and high intelligence and refined manners, and truth, and justice, and honour, and patriotism and divine benevolence everywhere prevail. I see the universal people, amid all their material prosperity and marvellous intellectual progress, governed ever by the immutable principles of pure religion,—repressing vice, exalting virtue—true to themselves, true to humanity, true to the high purposes of heaven, exalted by that righteousness which exalteth a nation—brave, and free, and happy, and powerful, working out their glorious destiny under the benignant guidance of the Ruler of nations.

MORAL TRAINING IN PUBLIC SCHOOLS.

Mr. J. M. Buchan, M.A., High School Inspector, delivered an address on this topic. He said that his reason for selecting this subject was that he had noticed lately that there had been something like an educational scare with regard to the subject of moral training in schools. It had always been common to meet with people who insisted that our Public School system must eventually demoralize the people; that the absence of religious instruction from the schools was certain to lead to the absence of moral training. More recently he had noticed that this feeling had been shared in by teachers themselves. You would find here and there throughout the country teachers proposing that moral text books should be introduced into the schools: and that there should be distinct training given in morality, just as in history and geography. There was a great temptation to lead teachers to take this course. Paterfamilias, when he received a report from a school showing that his son and heir had done well, not only in the ordinary subjects of education, but that he had done well in christian morals also, was inclined to think that the school which his son attended was an excellent one. Whereas if paterfamilias paid a visit to the school he would probably become of a different opinion when he saw his son reciting so many verses of scripture or repeating the ten commandments to the teacher, while he was cutting up all sorts of capers when the teacher's back was turned. He would come back in all probability with different views in regard to the moral training of pupils in schools. Much of the misapprehension that existed as regarded the teaching of morals in schools arose from the want of clear ideas as to the nature of morals, and particularly as to the distinction between morals and religion. These have different foundations in human nature. Our moral notions were all based on the feeling of duty that was present in every man. This feeling was developed at an exceedingly early age through the perception of relations between one human being and others. Children, very young, gave indications of possessing this feeling. Now all systems of religion were based on something totally different. They were based on a conception of some relation between human beings and supernatural beings. In some nations religion and morals did not cover the same ground. The ancient Greeks were a case in point. They had gods for everything, even a god of thieves. Their religion was not morality and it did not cover the moral sphere completely. Our religion on the contrary was remarkable as covering the moral sphere. It was obvious of course to those who believed in any religion at all, that the religious duties were moral duties because they were those we had to observe ; but it was common to make a distinction between morals and religion, to confine morality to the duties we owe society. In the same way religion was sometimes limited to strictly religious duties. He would proceed to notice some of the peculiarities of our moral nature which it was necessary to notice in order to have clear ideas on the remainder of the subject. He had already adverted to one of those peculiarities—that there was an innate capacity in mankind for classifying conduct as right and wrong. In the next place it was to be noticed that we had within us a monitor that praised or condemned our actions in a very curious way. You could not influence it or change it by any argument whatever. It was inflexible. It gave a certain decision, and that remained its decision. But it was also necessary to observe that this Rhadamanthus of the inner nature varied in different countries. That was considered right in Asia which was held to be wrong in America, though this quality of variation was limited. This directed his attention to another important peculiarity, and this was that, though we knew what was right, and though our conscience told us we should do what was right, we did not always do it. Everyone of us could say with Horace, *Scio proboque meliora deteriora sequor*—"I know and approve of the better ; I follow the worse." Moral training was necessary to get over to some extent this peculiar defect in our nature. They all admitted that a man's morality was to be estimated not by what he thought was right, but what he did. It was conduct which was the test, and in order that our conduct might be right in as great a number of cases as possible it was necessary that we should form habits of right action. These acquired habits relieved us of the necessity or formally deciding in a great many instances. Of course there would always cases arise in which it would be very difficult to come to a conclusion as to what was right or wrong ; but by acquiring these habits an important economy was effected. Habits were formed by a natural process, and determined the character of the future man to an exceedingly large extent. The capacity of forming habits depended upon the imitative faculty. They were formed by repetition of actions. The capacity for imitating was particularly strong in the young, and it was in youth that most habits were formed. It would at once be seen that the associations and surroundings of a child from the very earliest period were instrumental in determining its character, its moral nature. It would, therefore, be evident that home influences and other influences outside the school, must have far more to do with the determination of this character than the school. The school did not receive the young person till it was five years of age. The school, moreover, took charge of the pupil only for so many hours a day for five days in the week, and for forty weeks in the year. It was obvious that the school did not play the first part in the moral education of the young. He appealed to the teachers here to say whether the bad boys of a school were not bad when they came to it. Having thus cleared up what the teacher could not do, they would next consider what the teacher could do. He must say, first of all, that the teacher's work in this respect depended more upon the silent influence of his actions than on anything which he could mention. He would mention certain points in which the schools were really moral teachers, and in which they could be made better moral teachers. In the first place, the discipline of school was of itself a valuable moral agent. The habits of obedience formed or strengthened there, were an incalcuable benefit to persons who were to live in a civilized state. Again the habit of punctuality was inculculated and this was of great importance in all business operations. Then self-control in many of its various aspects was forced upon the pupils by the nature and discipline of the school. Again, the special acts of discipline in the school could be made to have very great moral use. Everything depended upon the method that was adopted in performing acts of discipline. If this method was one that commended itself to the growing moral nature of young persons it would have a good moral effect. It would be absurd, however, to appeal to a moral nature which did not as yet exist in the child. The work performed in the school was of immense moral value. Dr. Watts had expressed that in the words "Satan finds some mischief still for idle hands to do." If work accomplished nothing else it prevented the formation of evil habits. But it also led to the formation of good habits, industry, diligence and others. Not least among the good habits encouraged by the school was that of accuracy, a quality which was of great importance in the education of a child, on account of its bearing on truthfulness. Again, the going to school and mingling with a number of children had of itself a great number of moral advantages. The pupil became a member of a moral society, and had to conform to the rules of that society. A word or two might be said about the influence teachers might exert by attending to the manners of their pupils. The essence of good manners required that we should seem to be everything that was good, and the very effort of seeming to be good had a tendency to make us good. What, then, was the conclusion of the whole matter? First, with regard to the charge that was often made, that in consequence of the want of the formal teaching of religion in our schools, the moral tone of the community was declining—to that charge he must utter an indignant "nay." It was impossible to find any evidence of it. If you appealed to the evidence of facts and figures you would find no confirmation for any such charge. Compare the statistics of the past twenty-five years with those of the preceding quarter of a century and you would find that there had been no increase in the number of crimes or in the moral degradation of the people. It could not be maintained that Germany, France and Scotland, where religious instruction had been given in the schools were morally in advance of the communities on this side of the Atlantic, in which a different system had prevailed. He believed that in a country where teachers were selected, as they were here, by local boards constituted in the immediate neighbourhood of the schools, the teachers would be at least equal in average morality to the rest of the community. The very nature of their occupation was likely to make them morally superior. Supposing, however, that they were only equal in morality to the rest of the community it seemed that their influence would be about the same as that of the rest of the community. One word more. If the teacher wished to be successful as a moral trainer he must pay attention to his own character and to those "silent influences," which the speaker had referred to. The moral character of a human being grew like a plant. You could not fix the moment that it took a step onward. The individual himself could not really tell you how he obtained his fundamental ideas, or even those of later growth. It appeared to the speaker that to attempt to develop the moral nature by means of a text book would be the same as if a person were to take a plant and put it on the soilless floor of his library and water it with treatises on agricultural chemistry, and give it books on botany instead of the glad sunlight.

BIOLOGY IN ELEMENTARY EDUCATION.

PROFESSOR RAMSAY WRIGHT, UNIVERSITY COLLEGE, TORONTO.

MR. PRESIDENT AND GENTLEMEN,—

I had almost forgotten when I promised a paper on Biology in Elementary Education, to your Secretary, that there already existed in the hands of all those interested in the subject one of Prof. Huxley's admirable essays, which covers most of the ground I had intended to take. That to which I refer, is entitled "The Educational value of the Natural History Sciences," and like everything which is the work of its author, it is characterized throughout by sustained vigour, and contains in every sentence, forcibly expressed truth. If I have occasion to touch upon any of the points there treated, I shall not be afraid of an accusation of plagiary, because I am confident that the good things contained in the volume referred to, cannot be too often repeated in public. To avoid the appearance, however, of serving up to you merely a recapitulation, I shall endeavour to dwell for the most part on certain aspects of the subject which have not been, so far as I am aware, discussed before you. I must, in the first place, before doing so, specially acknowledge my indebtedness to Prof. Huxley's writings for the interest which I take in the diffusion of natural knowledge, and for the stimulus which they have afforded me in prosecuting my professional work.

The teaching of Natural Science now forms an integrate part of the Ontario Educational System, and consequently it would be a mere waste of time for me to insist upon the desirableness of its introduction into the schools. We must not be satisfied, however, with its forming a part of the programme, but ought to strive to increase its efficiency without trespassing upon the time necessary for the satisfactory prosecution of the more essential scholastic studies. It is matter for congratulation, nevertheless, that the first plunge has been taken, and in this respect we can afford to regret that the British House of Commons, in spite of the exertions of Playfair, Lubbock and others, has excluded Elementary Science from the list of subjects for which grants are given under the Educational Code, putting a premium in fact upon ignorance of the children as to their natural surroundings. English public opinion is not likely to submit to such exclusion, and if the *Times*, (July 12th, Weekly Ed.) be taken as a fair index of it, the placing of Natural Science at a par with other studies is not far distant.

I propose to treat my subject from three points of view (1) the advantages of introducing Biology into Elementary Education, (2) the nature of the studies by which that introduction must necessarily be preceded, and (3) the methods to be employed in its systematic teaching.

With regard to the first point, the advantages of a widely diffused knowledge of Biology, there is no thesis which should be insisted on so frequently as this, "That it is our duty to acquaint the youth of the country with the fundamental laws of their *organism* which guide the working of the human organism, in order to make them capable of grasping the true doctrines of health. That such information is unfortunately too necessary, we may gather from the immense death-rate from infectious diseases, from the immense consumption of quack medicines by the ignorant, and from the large number of irregular practitioners who find plenty of employment. The recent action taken by the Legislative Assembly in appointing a Sanitary Committee, leads us to hope that something will be done in the way of Compulsory Education by the enforcement of rigid sanitary laws; but these unquestionably will never have their due force till the Public has been educated up to them by a diffusion of a knowledge of the laws of health in relation to human physiology. I consider that such an acquaintance with physiology can only follow a study of the laws of living matter in general, which such a course as I am about to advocate will give.

Far more important, however, than health, is the question of man's position in the universe. This, long left to the Speculative Philosopher, is claimed to come under the domain of the Biologist by those who accept the truth of the doctrine of evolution; and although I would by no means insist like Prof. Hæckel, the High Priest of the new monistic Philosophy, that that doctrine should as an accepted hypothesis be used as the guiding principle in all our instruction of the young, still, I conceive it to be our duty that such a fundamental knowledge of Biology should be spread abroad, that the people should not have to trust to such miserable supports as a set of lectures on so called Biology which has recently appeared.

In connection with this question, the investigation of the phenomena of mind must ever have much interest. It is only recently that Psychology has been cultivated as a branch of Physiology; and from the material advances made by men like Lewes, Wundt and others, we may anticipate that much light will be thrown on the function of the brain as the organ of mind. These advances have been of such a character that the education in Mental Philosophy which does not comprise a comparative study of the forms lower than man, especially as regards the psychic phenomena evinced, must of a necessity be one-sided.

There are many other studies, such as the history of the earth, which would be absolutely closed to him who is ignorant of living forms, and still others, such as Anthropology, Ethnology, and even Linguistic Science, in which the methods acquired by pursuit of Biology would be of inestimable advantage.

Apart from all these, however, the study of living forms must be regarded as of great value in training the observative faculties, which can be neglected with impunity by no one who has to enter the battle of life.

Without detaining you longer on this point, I must direct your attention to the inexhaustible fund of pleasure prepared for those in whose early training a love of examining nature has been encouraged. There is hardly any boy in whom what has been called the *cacœthes colligendi*, is not evinced at some time or other, and it is a pity that this is not often diverted into channels capable of giving more lasting pleasure and profit than the hunting after postage stamps, crests and the like.

The second point which I have set for myself to consider is : What are the studies which must precede that of Biology ? I do not intend to do more than refer to the circumstance that in some schools abroad, more prominence has been given to the study of Natural Science than seems to me desirable. This is no doubt a reactionary influence which will adjust itself in good time, but I think it necessary to explain that I consider no infringement upon the ordinary literary studies is at all justifiable. The pupil who proceeds to study nature without some knowledge of the Latin and Greek languages, is destitute of a most important tool, even if, as some scientific men advise, the vernacular were to be employed for the terminology of our sciences, these languages would always remain the common ground on which scientific men of various countries could meet.

Of the order in which the sciences should be taught I must speak more at length. In the essay, Huxley, to which I have referred, it is stated that "systematic teaching in Psychology cannot be attempted with success until the student has attained to a certain knowledge of Physics and Chemistry, for though the phenomena of life are dependent neither on physical nor on chemical, but on vital forces, yet they result in all sorts of physical and chemical changes which can only be judged by their own laws." Since this last clause was written, Biologists recognize it as more imperative than ever that chemistry and physics should precede their own study ; for our own body, as a german physiologist expresses it, like that of every other animal, is an organism in which by the chemical change of its constituent parts, potential is converted into kinetic energy. Such a statement of the case is only an indication of the fact that the further physiological investigations are carried, the more it becomes apparent that the laws which regulate change in the animal and vegetable body, are those which are operative in the inorganic world.

How hazardous is it then to advance to the study of living matter, without having first conquered the principles which guide it in its simpler combinations.

Apart from the elementary facts and principles of those sciences which are necessary to the Biologist, nothing is more important than that he should have acquired the accuracy of method which characterizes them. Kant says, That the scientific value of any branch of knowledge may be measured by the applicability of mathematical method to it. A similar statement of Comte's has been energetically combated by Huxley (Scientific Aspects of Positivism—Lay Sermons, &c., p. 168); but there is this much truth in it, that the value of any science in mental training and in preparing the mind for future scientific research, can be so measured.

It is not so much the facts we want to impress on the student as the encouragement of a certain habit of thought. Haeckel says, "After all it is always the recognition of the effecting causes, not the mere knowledge of facts which satisfies the constant want of causalities of our mind. The recognition of common simple causes for the most various and complicated phenomena leads to the simplification as well as to the deepening of our education and culture; only by causal conception dead knowledge becomes living science. Not the quantity of empirical knowledge, but the quality of its causal conception is the true measure of the education of the mind." (Munich Address, 1877.)

That this is the sort of mental education which we wish to give, is only too evident from the deficiency in it which all of us experience more or less. The value of the more exact physical sciences in cultivating judgment is well advocated in a lecture of Faraday's, which in these days of hunting after the mysterious, everyone may still read with advantage. (Mental Education, a Lecture at the Royal Institution, 1854. Researches in Chemistry and Physics. p. 463.)

A careful study of Mathematics must of course precede any attempt to teach the Physical Sciences from this point of view, and side by side with that, drawing ought to have a most important place, which, if the old method of copying be now discarded is so valuable in training the eye and hand, and which I have found of great service while teaching with the microscope in helping my students to form clear and precise ideas of what they see.

The question may be asked how is the curiosity of the youth to be satisfied during this period of probation. You must have experienced that it is often too easily satisfied, but where it is not, there I should counsel that instead of hastening to the systematic study of Biology, the observation of plants and animals in their homes should be encouraged as much as possible, by putting attractive reading (such as the books of the Rev. Mr. Wood) in the way of the pupil.

It is a first essential, however, that the foundation should be such as will not afterwards require to be pulled down; and this brings me to the third point on which I propose to speak: The methods of the primary systematic teaching of Biology.

The introduction of this subject into the schools has flooded the market with text books and primers innumerable, and of very unequal merit. These are roughly divisable into two classes. Most of them, in pleasant and sometimes accurate language, attempt to convey a simplified general view of the facts and principles of the science in question. They, as it were, attempt to walk the student round the boundaries of their particular domain, expounding meanwhile the pleasures to be experienced inside ; or else they take him up in a ballon, and give him an admirably arranged, though hazy birds-eye view of the whole prospect. Some books on the other hand aim at an exhaustive study of certain commanding points ; they take the student inside the circle of their science, toil with him up the Pisgah heights, and point out the pleasant lands lying beyond.

If the master thinks a text book is necessary for the instruction of his pupils, and if only one of these sorts is to be selected, I should unhesitatingly recommend one of the latter kind. It implies, I admit, accurate, if not extensive knowledge on the part of the teacher, but I think it unlikely that any teacher who had himself pursued, and who was himself teaching such a course, would not be continually widening his knowledge around these centres.

I should not be consistent with what I have already said, did I not insist that in any systematic course of Biology the teaching must be from the less to the more complex. This unfortunately is not always attended to, and complicated processes are invested with a fictitious simplicity which does not belong to them, while the simplest life processes are regarded as mysterious. I could cite endless instances of this fault.

It follows, that if we accept this order of things, that an Elementary Biological course must be, in the main, observational, for it is in the study of the most complex part of Biology and Physiology of the higher animals that the accurate experimental methods.of physical research have been employed.

It is impossible to recommend any one Book which would satisfy all the requirements of such a course, but the Elementary Biology of Prof. Huxley and Martin is as near perfection as any I know, and is valuable not only for the lessons there detailed, but as a model to an intelligent teacher for similar lessons.

It may be said that the qualities necessary for a teacher to give such a course are exceptional ; that it is rare to find the accurate knowledge of several sciences which is taken for granted above. I do not see, however, why we should not expect as much of a teacher as we do of the pupil. I adhere to my opinion that any one with aptitude for imparting knowledge, who has had the advantage of such a training, will be able to teach again adequately what he has learned ; and more than that, he will constantly in his teaching add an item of knowledge to the various nuceli he has first gained, till his knowlege, increasing in ever-widening circles, will render him all the more suitable for his position.

For the teacher must be a man of catholic sympathies, not stopping to specialise even in his leisure hours, for his time will be taken up with devising new methods of illustration and experiment, in keeping himself *au courant* with the great advances of the science he teaches, and in seeking in his neighbourhood, new material for illustration, and thus being able to encourage a liking for out-door work in his pupils.

TREASURER'S REPORT

FOR THE YEAR 1877—8.

RECEIPTS.

Balance from last year—in Bank, $75.34; Cash on hand, $15.88	$91 22
Interest on Deposit	5 45
Members' Fees	74 50
Proceeds of sale of Annual Report	45 85
Tickets for Excursion to Falls	21 25
Advertisements in Annual Report	25 00
	$263 27

EXPENDITURE.

Printing Annual Report for 1877	$60 00
Printing Annual Circular for 1877	16 50
" " " 1878	7 75
Printing Passes	6 25
Secretary's Account for Postage, &c., 1877	4 00
Minute Secretary for 1877	4 00
Advertising	11 00
Gas Accounts for 1876 and 1877	5 80
Caretaker of Normal School Buildings	4 00
Treasurer's Postage, &c.	0 55
Total expenditure,	$119 85
Balance in Bank, $140.79; Cash on hand, $2.63	143 42
	$263 27

SAMUEL McALLISTER,
Treasurer.

Audited and found correct,

H. DICKINSON,
W. MACINTOSH, } *Auditors.*

THE TORONTO SCHOOL OF MEDICINE,

IN AFFILIATION WITH

The University of Toronto, and the University of Victoria College,

And recognised by the several Colleges of Physicians and Surgeons of Great Britain.

THIRTY SIXTH SESSION, 1878-9.

HENRY H. CROFT, D.C.L., F.L.S.; Professor of Chemistry and Experimental Philosophy, University College; Emeritus Lecturer on Chemistry.

WM. T. AIKINS, M.D., Surgeon to the Toronto General Hospital and to the Central Prison, Consulting Surgeon to the Children's Hospital; Lecturer on Principles and Practice of Surgery and Clinical Surgery.—78 Queen Street West.

H. H. WRIGHT, M.D., L.C.P., and S.U.C.; Physician to Toronto General Hospital; Consulting Physician to the Children's Hospital; Lecturer on Principles and Practice of Medicine, and Clinical Medicine.—197 Queen Street East.

J. H. RICHARDSON, M. D., M.R.C.S., Eng.; Consulting Surgeon to Toronto General Hospital, and Surgeon to Toronto Gaol; Lecturer on Descriptive Anatomy.—46 St. Joseph Street.

UZZIEL OGDEN, M.D. Physician to Burnside Lying-in Hospital, Consulting Surgeon to the Children's Hospital, Physician to the House of Industry and Protestant Orphan's Home; Lecturer on Midwifery and Diseases of Women and Children.—57 Adelaide Street West.

JAMES THORBURN, M.D., Edinburgh and Toronto Universities; Consulting Physician to the Toronto General Hospital and Boy's Home; Consulting Surgeon to the Children's Hospital; Lecturer on Materia Medica and Therapeutics.—Wellington and York Streets.

M. BARRET. M.A., M.D.; Medical Officer to Upper Canada College, and Lecturer on Physiology Ontario College of Veterinary Medicine; Lecturer on Physiology.—Upper Canada College.

W. W. OGDEN, M.B., Physician to the Toronto Dispensary; Lecturer on Medical Jurisprudence and Toxicology.—242 Queen Street West.

M. H. AIKINS, B.A. M.B., M.R.C.S., Eng., Lecturer on Primary Anatomy.—Burnhamthorpe.

W. OLDRIGHT, M.A., M.D., Physician to the Newsboy's Home; Curator of Museum and Lecturer on Sanitary Science.—50 Duke Street.

L. McFARLANE, M.B., Physician to the Toronto Dispensary; Demonstrator of Anatomy.—7 Wilton Avenue.

GEORGE WRIGHT, M.A., M.B., Physician to the Toronto Dispensary, Physician to the Children's Hospital; Demonstrator of Anatomy.—243 Simcoe Street.

ALEX. GREENLEES, M.B.; Practical Chemistry.—123 Church Street.

R. ZIMMERMAN, M.D., L.R.C.P., Lond.; Physician to the Toronto Dispensary, Physician to the Children's Hospital; Demonstrator of Microscopical Anatomy.—171 Church Street.

F. H. WRIGHT, M.B., L.R.C.P., Lond.; Physician to the Toronto Dispensary, Physician to the Children's Hospital; Demonstrator of Microscopical Anatomy.—197 Queen Street East.

J. E. GRAHAM, M.D., L.R.C.P., Lond.; Surgeon to the Toronto General Hospital; Lecturer on Chemistry.—66 Gerrard Street East.

R. A. REEVE, B.A., M.D., Ophtalmic Surgeon to the Toronto General Hospital; Lecturer on Diseases of the Eye and Ear.—22 Shuter Street.

J. H, SMYTH, M.A., Botany and Zoology.

Clinical Lectures will be given at the General Hospital by Dr. H. H. Wright, Dr. Aikins, Dr. Richardson, Dr. Thorburn, Dr. Graham, and Dr. Reeve.

Clinical Instructions will be given at the Toronto Dispensary by Dr. McFarlane, Dr. George Wright, Dr. F. H. Wright, and Dr. Zimmerman.

Janitor of School, James Pickering. Residence on the premises.

In order to afford accommodation to the yearly increase in the number of students, the Faculty have made a large addition to their Building, which includes a new Lecture Room, admirably lighted, and capable of seating about two hundred and fifty; a Physiological Laboratory, and Pathological Museum.

MINUTES

OF THE

NINETEENTH ANNUAL CONVENTION

OF

THE ONTARIO ASSOCIATION

FOR THE

ADVANCEMENT OF EDUCATION,

HELD IN

THE PUBLIC HALL, NORMAL SCHOOL, TORONTO,

AUGUST 12th, 13th, and 14th, 1879.

TORONTO:
TROUT & TODD, MONETARY TIMES OFFICE.

1879.

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OFFICERS.

1879–1880.

President.

R. ALEXANDER, GALT.

Vice-Presidents.

WILLIAM McINTOSH, JAMES SEATH, AND H. DICKENSON.

Recording Secretary.

JAMES HUGHES, TORONTO.

Corresponding Secretary.

ADAM PURSLOW, M.A., PORT HOPE.

Treasurer.

F. S. SPENCE, TORONTO.

Executive Committee.

MESSRS. SCARLETT, SMITH, DEARNESS, MAXWELL, McQUEEN, McMURCHY, McHENRY, J. MILLER, J. S. CARSON, McALLISTER, DOAN, RANNIE, BOYLE and STRANG.

MINUTES

OF THE

NINETEENTH ANNUAL CONVENTION

OF

THE ONTARIO ASSOCIATION

FOR THE ADVANCEMENT OF EDUCATION,

HELD IN THE PUBLIC HALL, NORMAL SCHOOL,
AUGUST 12TH, 13TH AND 14TH, 1879.

The Convention met at 10.15 a.m.

The President, Dr. J. A. McLellan, in the Chair.

The Meeting opened with the reading of a portion of Scripture, and Prayer by Mr. James Hughes.

Moved by Mr. McMurchy, and seconded by Mr. Brown, That in view of the Minutes of last Convention being printed and distributed, the reading of them be dispensed with.—Carried.

Mr. Spence, the Treasurer, then read his Annual Report.

Moved by Mr. Brown, and seconded by Mr. Duncan, That the Report be received and referred to a Committee of Audit, consisting of Messrs. McIntosh, Dickinson and McMurchy.—Carried.

Moved by Mr. Hughes, and seconded by Mr. McIntosh, That Mr. Andrew Hendry be Minute Secretary.—Carried.

Moved by Mr. McAllister, and seconded by Mr. Dickinson, That Messrs. McMurchy, D. Johnston and McIntosh be a Committee to prepare a resolution of condolence with the family of the late Mr. McCallum, of Hamilton.—Carried.

The Convention then adjourned.

AFTERNOON SESSION.

Convention met at 2.15.

President in the Chair.

Minutes of last Session read and adopted, after the name of Mr. Scarlett was added to the Committee of Condolence with the family of the late Mr. McCallum.

The Report of the Committee appointed to consider the advisability of making the Association a representative one, was then read by Mr. Hughes.

The Report read as follows: That in their opinion it is advisable to amend the Constitution so as to secure a representative character to the Association, and they recommend that a Committee be appointed for that purpose, to report during the present meeting of the Association.

Moved by Mr. Harvey, and seconded by Mr. Duncan, That the Report be adopted. The motion was carried after discussion, in which Messrs. D. Johnston, Boyle, McIntosh, Dickinson, Scarlett, Doan, Dawson and Harvey, took part.

It was then moved by Mr. Alexander, and seconded by Mr. McHenry, That the same Committee be re-appointed to carry out the last suggestion contained in the Report.—Carried.

Moved by Mr. Spence, and seconded by Mr. Brown, That the matter be reconsidered, so as to add more names to the Committee.—Carried.

Moved by Mr. Spence, and seconded by Mr. Brown, That the names of Messrs. Doan, Carson and Boyle, be added.—Carried.

On motion of Mr. Dickinson, seconded by Mr. Brown, Mr. Seath's name was also added.

Mr. McQueen then read the Report of the Committee appointed to consider the matter of distribution of Legislative and Municipal Grants.

Messrs. Brown, Carson, McIntosh, Scarlett, Dearness, Knight and Dickinson, took part in the discussion which followed.

Moved by Mr. Dickinson, and seconded by Mr. Dearness, That the Report be considered *seriatim*.

Moved in amendment by Mr. McAllister, and seconded by Mr. McIntosh, That the most effectual way of removing the inequalities of School taxation would be the establishment of Township Boards.

A discussion followed, in which Messrs. Dickinson, Dearness, Campbell and others took part.

The amendment was carried.

Mr. McIntosh moved, That as the distribution of the Legislative Grant among the minor Municipalities of the Province is now made on the basis of its population returns, made by the local assessors, this Association would suggest to the authorities interested the necessity that exists for taking such steps as shall ensure the accuracy of such returns.

The resolution was seconded by Mr. Dearness, and carried.

Reports of a satisfactory nature were then received regarding County Associations from

	Mr. Neeley,	South Simcoe,
	“ Knight,	East Victoria,
	“ Duncan,	North Essex,
	“ Johnston,	Northumberland,
	“ Hall,	South Grey,
	“ Rannie,	North York,
	“ Henderson,	East Huron,
	“ Gregory,	West Huron,
and	“ Coates,	Halton.

The Convention then adjourned.

EVENING SESSION.

The Convention met at 8 o'clock, p.m.

The President in the Chair.

The Minutes of previous Session were read and approved.

The President, Dr. McLellan, then delivered a very able address on the Value of Mathematics as an Instrument of Education.

At the close of the lecture a very cordial vote of thanks was tendered the lecturer for his very able and interesting address, a motion to that effect being moved and seconded by Messrs. Dawson, Belleville, and J. H. Smith, Wentworth, respectively.

The meeting then adjourned.

Wednesday, August 13th, 1879.

The Convention met at 2 p.m.

One of the Vice-Presidents, Mr. J. C. Brown, took the Chair.

Mr. McHenry, Principal Collegiate Institute, Cobourg, then delivered an address on The Higher Education of Women.

Moved by Mr. Scarlett, and seconded by Mr. A. Miller, That the cordial thanks of this meeting be and are hereby tendered to Mr. McHenry for his admirable Essay on the above subject.—Carried.

After a few remarks from Mr. Coleman, Coll. Inst., Cobourg, and Mr. Knight, Victoria, the Rev. Dr. McVicar, of Montreal, delivered a short address on the Higher Education of Women, touching also on the Co-education of the Sexes.

In the absence of M. J. Kelly, Esq., M.A., Brantford, Mr. J. S. Carson, P. S. I., West Middlesex, introduced the subject of Uniform Examination for Promotions in Public Schools, in an able address.

Messrs. Harvey, Alexander, Scarlett, Chapman, Spence, McIntosh, Boyle, McKinnon, McAllister, and others, took part in the discussion which followed.

Moved by Mr. McAllister, and seconded by Mr. McIntosh, That the thanks of this meeting be tendered Mr. Carson for the able manner in which he introduced the subject of Uniform Examinations for Promotion in Public Schools.—Carried.

Moved by Mr. J. Munroe, and seconded by Mr. McQueen, That in the opinion of this Association the Entrance Examination to High Schools is a fair and satisfactory test to Teachers and Trustees of the work done in our Public Schools in the Fourth Class. —Carried.

Messrs. McIntosh, Scarlett, Miller, Campbell and others, spoke to the motion.

Moved by Mr. McKinnon, Peel, and seconded by Mr. Harvey, Barrie, That the Education Department be respectfully requested to provide, at as low a cost as possible, for such Counties as may wish to avail themselves of them, Uniform Promotion Papers for all Classes below the Fourth.

A number of members discussed the resolution, when, on its being put to the meeting, it was declared lost.

The Convention then adjourned.

Evening Session.

The Convention re-assembled at 8 p.m.

The President, Dr. McLellan, in the Chair.

The Minutes of last meeting were read and approved.

Professor Young, University College, Toronto, then delivered a Lecture on the subject entitled The Order of Development of the Faculties in Relation to Education.

At the close of the Lecture a cordial vote of thanks, moved by Mr. Knight, Victoria, and seconded by Mr. McAllister, Toronto, was tendered the Lecturer for his very able and interesting address.

The Convention then adjourned.

Thursday, August 14th, 1879.

Convention assembled at 2 p.m.

The President in the Chair.

The minutes of last Session were read and approved.

The Report of the Auditing Committee was then read and adopted.

Moved by Mr. Alexander, and seconded by Mr. McAllister, That a reduction of 25 per cent. be made on the price of the Minutes of the Association, to those Local Associations ordering not less than Thirty copies.—Carried.

Mr. Knight, of Kingston, delegate from the Eastern Educational Society of Ontario, then addressed the Convention in an interesting and instructive manner.

The Report of Committee of Condolence with the family of the late Mr. McCallum, was then read by Mr. McMurchy, Chairman. It read as follows:—

The Association would express its sense of the great loss it has sustained by the death of Archibald McCallum, Esq., M.A., LL.B., late Inspector of Public Schools in the City of Hamilton. Mr. McCallum was a faithful and useful member of this Association from its beginning in 1860. Seldom did he allow a single Convention to pass without, by his presence, effort and counsel, aiding very influentially to forward the business of our Annual Gatherings, and thus, in every legitimate way, secure the healthy advancement of Education and the best interests of the teaching profession. His removal from amongst us repeats the warning from the Master, "Whatsoever thine hand findeth to do do it with thy might." The Association hereby puts on record its earnest sympathy with the family of our friend in their sore bereavement.

(Signed), A. McMurchy.

Moved by Mr. McIntosh, and seconded by Mr. J. H. Smith, That Mr. McMurchy be requested to prepare a short sketch of the life of the late Mr. McCallum, to be embodied in the next printed Minutes of the Association.—Carried.

The Report of the Committee appointed to amend the Constitution was then read by Mr. Hughes. It recommended as follows:—

That the question be laid over for one year, and that the Executive Committees of the Sections be appointed a Joint Committee to consider and report on the subject at the next Annual Meeting.

(Signed), J. Hughes, *Chairman of Committee.*

The Report of the Executive Committee on the Election of Officers was then read as follows;—

The Executive Committee beg to report that the following gentlemen be appointed as Officers for the ensuing year:

President—Mr. R. Dawson, Belleville.
Vice-Presidents—1st. Mr. Wm. McIntosh, Hastings.
2nd. Mr. J. Seath, St. Catharines.
3rd. Mr. H. Dickinson, Stratford.
Recording Secretary—Mr. James Hughes.
Corresponding Secretary—Mr. A. Purslow.
Treasurer—Mr. F. S. Spence.

The Report was amended by striking out the name of Mr. Dawson and substituting therefor the name of Mr. Robert Alexander, Galt.

Moved by Mr. Miller, St. Thomas, and seconded by S. McAllister,

1. That in the opinion of this Association the steps which have

been taken by our Universities in promoting the Higher Education of Women are highly commendable, and that we would gladly favor the removal of any remaining obstacles to the full admission of women to University degrees.

2. That women thus qualified should be entitled to all the advantages accessible to men who have graduated at our Universities.—Carried.

Mr. J. Coyle Brown delivered an address on Physical Education in School.

Moved by Mr. Hughes, and seconded by Mr. Johnston, Cobourg, That the thanks of this meeting be tendered Mr. Brown for his able address.—Carried.

Mr. O'Hagan, President of the Separate School Teachers' Association of this Province, then delivered a very able address on the Separate School System of Ontario.

A hearty vote of thanks was given him for his address, after which Mr. James Hughes, P. S. I., Toronto, read a paper on Uniformity of Text Books.

Moved by Mr. Alexander, and seconded by Mr. McIntosh, That the thanks of the meeting be given Mr. Hughes for his address. —Carried.

Professor Jones, I. P. S. in the city of Erie, Pennsylvania, who was present during some of the Sessions of the Association, then delivered a short and interesting address, after which the Convention adjourned on motion.

Evening Session.

The Convention re-assembled at 8 p.m.

Mr. D. I. Johnston occupied the Chair until the arrival of the President, Dr. McLellan.

The Minutes of the previous Session were then read, and were approved.

The Rev. Dr. McVicar, of Montreal, then delivered a very able

Lecture on Moral Culture an Essential Factor in Public School Education.

Moved by Mr. Miller, St. Thomas, and seconded by Mr. Seath, St. Catharines, That the hearty thanks of this Convention be tendered the Rev. Lecturer for his address.—Carried by a standing vote of the members.

The following delegates then gave reports regarding their respective local Associations :

Mr. Chapman,	Waterloo,
" Thompson,	N. Hastings,
" Maxwell,	Essex,
" Gardiner,	South Hastings,
" J. H. Smith,	Wentworth,
" C. A. Barnes,	Lambton.

Moved by Mr. Hughes, and seconded by Mr. D. Johnston, That the thanks of this meeting are due and are hereby tendered the Hon. the Minister of Education for the use of the Normal School building; to the daily newspapers; and to the railways. —Carried.

Moved by Mr. James Hughes, and seconded by Mr. Barnes, that Mr. Purslow, Port Hope; Mr. Smith, Wentworth, and the mover, be a Committee to wait on the authorities connected with the different Canadian railways, to endeavour to secure reduction in fares to teachers during the year.—Carried.

The Convention then closed by singing the National Anthem.

NOTICE OF MOTION.

I hereby give notice, that at the next Annual Convention of the Ontario Teachers' Association, I will move to amend the Constitution so that the Secretaries of the three Sections of this Association shall be *ex officio* Members of the Board of Directors.

ROBT. ALEXANDER.

PUBLIC SCHOOL SECTION.

THEATRE, NORMAL SCHOOL, TORONTO,

Tuesday, August 12th, 1879.

The first meeting of the Public School Section was held in the Theatre of the Normal School, Toronto, this morning at 11 a.m. Mr. D. I. Johnson, chairman of the section, presided.

After assenting to the minutes as printed, Mr. H. Dickinson, of Stratford, introduced the subject of Educational Journals.

The discussion was continued by Messrs. Boyle, McAllister, Clark and Harvey.

Mr. R. W. Doan moved, and Mr. Clark seconded, That a vote of thanks be tendered to Mr. Dickinson for his essay.—Carried.

Mr. Dickinson replied.

Mr. Doan moved and Mr. Clark seconded, That in the opinion of this section of the Association, the *Canada School Journal* and the *Canada Educational Monthly* are deserving of the support of Canadian teachers, and that the said section cordially recommends the above-named periodicals to the favourable consideration of the members of the teaching profession in this country.

The motion was *Lost*, it being understood that it was contrary to the custom of this Association to aid any private enterprise by the prestige of its recommendation.

Moved by Mr. McAllister and seconded by Mr. Dickinson, That it is desirable to have a journal as the organ of this Association. Motion lost.

Section adjourned at 12.30.

WM. RANNIE, *Secretary.*

Wednesday, August 13th, 1879.

Section met at 9 o'clock, a.m., Mr. Johnson in the chair.

Opening exercises by Mr. McQueen.

Minutes of last session read and approved.

The Chairman gave an address on Teachers' Associations.

Discussion ensued by Messrs. Alexander, W. B. Harvey, D. Boyle, H. Dickinson, F. S. Spence, S. McAllister, Levi Clark, G. Kirk, and P. McLean.

At the close of the debate a vote of thanks was tendered to the President for his able address, it being moved by Mr. H. Dickinson and seconded by Mr. R. Alexander.

At 10.35 Mr. Harvey read an essay on Model Schools.

Mr. Rannie moved and Mr. Campbell seconded that a vote of thanks be and is hereby tendered to Mr. Harvey for his instructive essay.—Carried..

Moved by Mr. H. Dickinson and seconded by Mr. Geo. Kirk :

1. That the standards for Principals and Assistants in Model Schools be adhered to.

2. That uniform professional papers for Model School students be set by the Central Committee.

3. That the County grant of one hundred dollars be made compulsory.

4. That the Legislative grant be increased.

5. That Head Masters of Model Schools be ex-officio members of the County Boards.

First four motions carried, fifth was lost.

Messrs. Harvey, Alexander, Dickinson, McLean and McAllister participated in the debate.

The adjournment of the debate was moved by Mr. Alexander, and seconded by Mr. Munro. Carried.

Section adjourned at 11.40 a.m.

WM. RANNIE, *Secretary.*

Thursday, August 14th, 1879.

Section met at 9 a.m., Mr. Johnson in the chair.

After devotional exercises by the Chairman, the minutes were read and adopted ; but on motion by Mr. R. W. Doan, seconded by Mr. W. B. Harvey, the minutes were re-considered.

Mr. Alexander moved, Mr. Harvey seconded, That the Secretary be instructed to write to the Minister of Education calling his attention to the series of resolutions with reference to Model Schools adopted by this section. Carried.

Moved by Theophilus Hall, seconded by Geo. Treadgold, That in justice to the teachers of the Province, the clause relating to the Superannuation Fund, which provides that teachers shall teach until sixty years of age, unless disabled, should be amended by introducing a clause giving them the right to retire after 25 years of active service, without forfeiture of their claims on the Superannuation Fund; and that Messrs. McAllister, Campbell and Spence be a committee appointed to lay this question before the Minister of Education. Carried.

Question was debated by Messrs. Campbell, Boyle, McAllister, Hall, Doan and the President.

Mr. Hughes gave an address on the Phonic System of teaching reading.

Mr. Clark moved, and Mr. Munro seconded a vote of thanks to Mr. Hughes for his illustrations of the Phonic System of Teaching. Carried.

Mr. Alexander moved, and Mr. Boyle seconded, That we recommend that the qualifications demanded from Candidates for Third Class Certificates be the successful passing of the Intermediate Examination, and the subsequent training at the County Model Schools, and further recommend that the ages of candidates be not less than 20 years for males and 18 for females.—Carried.

Discussed by Messrs. Alexander, Boyle, Campbell, McQueen, Dickinson, Kirk, Lindsay, Treadgold, Harvey, Johnson, Chapman, Munro, Clark, Hall and Doan. Mr. Alexander closed the discussion.

The following are the Officers elect for the P. S. Section for the ensuing year:

Chairman—H. Dickinson, Stratford.

Secretary—Wm. Rannie, Newmarket.

Executive Committee
Samuel McAllister, Toronto.
Robt. W. Doan, Toronto.
Wm. Rannie, Newmarket.
David Boyle, Elora.
Hugh J. Strang, Goderich.

Mr. Dickinson moved, and Mr. Chapman seconded, a vote of thanks to the past Chairman, Secretaries and Executive Committee.—Carried.

The Minutes of the previous meeting were again read and confirmed.

The Minutes of the present meeting were read and confirmed, after which the Section adjourned.

WM. RANNIE, *Secy. P. S. Section.*

HIGH SCHOOL MASTER'S SECTION.

Tuesday, Aug. 12th, 1879.

The Section met in the minister's private room at 10.30 a.m., and after being called to order Mr. Seath was elected Chairman, and Mr. Wightman, Secretary.

A communication was first read from the Minister relative to the time of holding the Intermediate.

A verbal report was presented by Mr. McHenry on behalf of the committee appointed last year to endeavor to bring about more uniformity in the work laid down for matriculation at the different Universities, and in reference to University consolidation. It was stated that owing to unavoidable circumstances the work had not been accomplished.

After some discussion it was moved by Mr. Coleman, seconded by Mr. Joliffe, and carried, that the same Committee be re-appointed, and with the same instructions.

On motion, it was resolved that the hours of meeting be from 9 to 12 a. m.

A paper prepared by Mr. A. Miller, of Walkerton, who was unable to be present, was then read by the Secretary.

Subject—The High School Programme of Study.

Considerable discussion took place on the contents of this paper, and finally a Committee was appointed consisting of Messrs. Orr, Coleman and Dawson to bring in a report on the subject.

The Section then adjourned to meet again at 9 o'clock on Wednesday morning.

The members present at this session were—Messrs. Bowerman, McHenry, Petch, Jolliffe, Coleman, Dawson, J. Miller, Jas. Smith, McMurchy, (Mathematical Master, St. Mary's Collegiate Institute), Hodgson, McMurchy, (Toronto Collegiate Institute), Orr, Seath, Wightman.

Wednesday, Aug. 13th, 1879.

Section met again at 9 a. m.

Minutes of previous meeting were read and approved.

The report of the Committee appointed to consider the subject of "The High School programme of Study" was presented by Mr. Orr. A good deal of discussion took place, and after some slight changes had been made in the wording of the report, it read as follows, and was carried unanimously:

"We, your Committee appointed to consider what changes are desirable in the High School programme of study beg leave to report, that, taking all things into consideration, the only subjects in the Lower School that in our opinion could be altered with advantage are those of the Science Optional Group and English History. In the former we would suggest that the examinations be less mathematical and more practical in their character, and that the English History prescribed should be confined to some particular period instead of extending as at present from Julius Cæsar to the present year."

The following members among others took part in this discussion: Messrs. Orr, J. Miller, Strang, Coleman, McMurchy, Seath, McHenry, Fessenden, Robinson and Petch.

The subject of The Intermediate and its Modifications was then considered.

The first point discussed was the time of the year when it would be best to hold it, it being assumed that in future there would be but one a year. Many members contended that it should be held at Christmas, and the reasons for this were very fully and ably stated by Messrs. Strang, McHenry, Coleman and others. On the other hand, it was held by Messrs. Robinson, Orr, Fessenden, McMurchy and others, that Midsummer was the best time for it to take place.

It was finally moved by Mr. Robinson, seconded by Mr. Fessenden, and carried, That in the opinion of the High School Masters' Section the Intermediate should be held at Midsummer.

In connection with the same question of the Intermediate, a motion was introduced by Mr. Strang, seconded by Mr. Fessenden, and after full discussion carried unanimously, That in the opinion of this Section it is desirable that the system of Rotation should be more fully recognized in the assignment of subjects for Examination to the various members of the Central Committee.

The question was then suggested by Mr. Miller, of St. Thomas, whether, with some modifications, the Papers for II. Class might not be used for III. Class Candidates, and it was also thought by Mr. McMurchy and others, that some distinction should be made at the Intermediate Examination between Candidates intending to teach and those merely purposing to qualify for the Upper School.

A Committee, consisting of Messrs. Turnbull, J. Miller, Williams, Knight, Houghton and McHenry, was appointed to prepare a report on the subjects to be given in the next morning.

The Section then adjourned to meet again at 9 a.m., on Thursday.

Thursday, August 14th, 1879.

The Section met again at 9 a.m.

Mr. Seath in the Chair.

The Minutes of the previous Session were read and approved. The Report of the Committee was, in the absence of Mr. Turnbull, presented by Mr. McHenry, who moved, seconded by Mr. Purslow, That it be received.—Carried.

The Report read as follows :

1. That III. Class Teachers, instead of being examined on a separate set of Papers, as at present, should be examined on the Papers set for II. Class Candidates—a lower percentage being required.

2. That a difference should be made between those candidates who are purely Intermediate being promoted to the Upper School, and those who are aiming at taking II. Class Certificates—a lower percentage being desirable in case of the former.

The first clause elicited a good deal of discussion, and in its place it was thought better to substitute a motion made by Mr. Dawson, seconded by Mr. J. Miller, and which was carried unanimously. The motion read as follows :

"That the Executive Committee of the Public School Section be invited to meet with the Executive Committee of the High School Masters' Section to take into consideration the desirability of having candidates for Third Class Certificates examined on the same papers as those for Second Class, and to report at the next annual meeting of the section."

In the discussion of the question, Messrs. Dawson, McHenry, Orr, Purslow, McMurchy, J. Miller, Robinson, Hicks and others took part.

The second clause of the Committee's report was unanimously adopted on motion of Mr. McHenry, seconded by Mr. McMurchy.

A ballot was then taken, which resulted in the election of the following as members of the Executive Committee of the Section, viz., Messrs. Seath, McMurchy, McHenry, J. Miller, and P. S. Inspector Carson.

The next subject on the programme was that of Government aid to schools for secondary education.

A discussion first took place on the question of inspection of High Schools and the apportionment of legislative grant dependent on this.

Messrs. Orr, McHenry, McMichael, Crozier, Wightman, Purslow, Strang, Hicks, Fessenden, Williams and others took part in the discussion.

A resolution moved by Mr. Strang, and seconded by Mr. Purslow, embodied the views of the members, and was carried unanimously. It stated that in view of the fact that the grading of the High Schools and the distribution of a large portion of the legislative grant is decided according to the results of inspection, it is, in opinion of this section, desirable that the High School Inspectors should be enabled to devote a greater amount of time to the work of inspection at their semi-annual visits.

Mr. Seath having to leave the room to attend a meeting of the Executive Committee of the Association, Mr. McHenry was elected to take the chair. A discussion then followed on the question whether it was desirable to continue the present system of giving an additional annual grant to High Schools when becoming Collegiate Institutes. The feeling of the masters was on the whole strongly opposed to its continuance, but as several of those who might wish to express their views had been shortly before unavoidably obliged to leave, it was decided to defer the subject, and Mr. Purslow gave notice that he would bring it up at the next annual meeting of the section.

Messrs. Robinson, Purslow, J. Miller, Hicks, Strang, Orr and others took part in this discussion.

The section then adjourned at 11.30 a.m.

There were present at this session Messrs. A. L. Parker, A. McIntosh, Knight, Williams, Purslow, Dawson, Henderson, McMichael, Orr, Fessenden, Seath, Wightman, Robertson, Robinson, Turnbull, McHenry, McMurchy, Strang and J. Miller.

PUBLIC SCHOOL INSPECTORS' SECTION.

The Public School Inspectors' Section met on Wednesday, 13th August. Mr. J. C. Brown in the chair.

Mr. Wm. McIntosh moved, seconded by Mr. D. A. Maxwell, that as different tests should be applied in the examination of second-class and intermediate candidates, this Section would respectfully suggest to the department that such changes be made in the regulations affecting such examinations as will allow of this being done. Carried.

Mr. Maxwell moved, seconded by Mr. Knight, that second-class candidates should not be allowed options between the group, Natural Philosophy, Chemistry, and Book-keeping, and any other subjects. Carried.

Mr. Maxwell moved, seconded by Mr. Knight, that the minimum qualifications required for second class certificates should be: For Grade B, 50 per cent. on each group, and 25 per cent on each subject; and for Grade A, 60 per cent. on each group, and 35 per cent. on each subject. Carried.

Mr. Dearness moved, seconded by Mr. McIntosh, that in addition to the different test percentages proposed to be required for second-class and intermediate certificates, candidates for the former class of certificates be submitted to *viva voce* examination in reading, and receive marks for writing and neatness; also that reading be invariably required for the non-professsional third-class certificate. Carried.

A discussion took place on the provisions of the school law relating to union school sections, and a resolution, moved by Mr. Fotheringham, was passed requesting the Secretary to communicate with the Minister of Education, asking him to issue a circular giving full explanations respecting the equalization of assessments in union school sections in giving effect to section 18 of the Bill of 1879 under section 137 of the Consolidated School Law.

A committee was appointed to consider the subject of second-class certificates.

Mr. Dearness moved, that whereas since pedagogy, school law, reading, and other important subjects are not included in the literary second-class examination; therefore it is exceedingly desirable in the interests of education that teachers holding second-class non-professional certificates, who have taught three years before 1877, be required at least to pass the professional examination before being granted Provincial second-class certificates. Carried.

The following resolution was adopted on motion of Wm. McIntosh: That the Minister of Education be respectfully requested to issue instructions clearly defining the relations and duties of the Public School Inspectors in connection with the County Model Schools; and that it is the opinion of this Section that persons practically acquainted with public school work should be appointed as general inspectors of Model Schools.

The officers for the ensuing year were elected as follows:—Chairman, Wm. McIntosh; Secretary, D. J. McKinnon; Executive Committee—Messrs. Scarlett, Smith, Dearness, Maxwell, and McQueen.

PAPERS READ

BEFORE THE ONTARIO ASSOCIATION

FOR THE ADVANCEMENT OF EDUCATION.

PRESIDENT'S ADDRESS.

THE VALUE OF MATHEMATICS AS AN INSTRUMENT OF EDUCATION.

In discussions on Education, one of the most important questions that has arisen is :—*What branches of study possess the greatest educational value as tending at once to secure the highest development of mental power, and contribute most largely to human progress?* From the variety of the intellectual powers, it may be fairly inferred that different subjects of study produce different results, and that it is absurd to expect to accomplish the great end of education by the *exclusive* study of any single department of human knowledge. But there are some subjects which educate the powers of the mind to a pre-eminent degree of activity and energy; and as I believe that the Mathematical Sciences can claim a high place among these, it is my present purpose to point out, in part, their beneficial influence as a discipline of the mind, and as an instrument of progress. I shall consider the subject under the following heads :—

I. THE CHARACTER OF MATHEMATICAL KNOWLEDGE, AND ITS GENERAL INFLUENCE ON THE MIND.

II. THE VALUE OF MATHEMATICS AS A MEANS OF INVIGORATING THE INTELLECTUAL POWERS.

III. THEIR VALUE AS A LOGICAL EXERCISE OF MIND.

IV. THEIR VALUE AS AN INSTRUMENT OF MATERIAL PROGRESS.

I.

THE CHARACTER OF MATHEMATICAL KNOWLEDGE AND ITS GENERAL INFLUENCE ON THE MIND.

1. Compared with Mathematics, no other department of knowledge so clearly illustrates the processes of the human mind in the establishment of true science; in none, has investigation led to the discovery of so great a number of important and recondite truths. This is no doubt

due to their *method* and the nature of their principles. The value of any *system* of knowledge and its influence in education, depend upon the nature of its first principles and the mode of its development. If these principles be founded on imperfect observation or hasty generalization, the superstructure reared upon them, though possessing an external aspect of solidity and beauty, and dignified by its builders with the name of Science, will partake of the instability of its basis, and crumble into ruins before the invincible progress of true philosophy. But, if they bear the impress of indubitable truths, and be developed by a strictly scientific method, there will result a knowledge that can be shaken neither by the attacks of scepticism, nor the cavils of ignorance—a knowledge which is indeed worthy of the name of Science. Now, the principles of pure Mathematics are necessary truths, and consequently the knowledge founded upon them is a science of pure reason. It has indeed been asserted that the Mathematician has no right to enquire into the nature of the first principles of the Science, and that a clear apprehension of their character as universal truths, cannot produce any modification of their influence in education. The former assumption is partly wrong, the latter entirely so. For, though the Mathematician has no right to enquire *how* pure synthetic propositions are possible as the offspring of the understanding—this being properly the province of the metaphysician—he has a perfect right, since his science is *demonstrative*, to enquire into the validity of the principles which underlie his demonstrations, or form his links of method. And again : if the first principles are considered as empirical, the entire science is viewed as empirical ; the necessary is sacrificed to the contingent, the mental to the material, a standing doubt as to the possibility of knowledge is likely to be generated in the mind, and a foundation laid for an *uncompromising sensationalism* with all its consequences. Hence, a clear apprehension of the nature of the first principles of the science, is necessary to the recognition of its real nature as a production of the understanding; and the science itself is thus enabled to exert a beneficial influence on the mind, by familiarizing it with a body of truths not derived from experience.

There are some philosophers who maintain that the first principles of Mathematics are merely generalizations from experience—a view which reduces the science to empiricism, and virtually implies the impossibility of any knowledge independent of sensuous impressions. If the meaning be, that these principles are first made manifest through the agency of something out of the mind, it may be readily admitted, since there is no knowledge developed in the mind in point of time absolutely *antecedent* to experience. But though experience may be the *occasion* of our knowledge, as furnishing the materials of thought, and calling into activity the latent energies of the mind, does it follow that all our knowledge is derived from experience, uninfluenced by the creative laws of the "INTELLECTUS IPSE ?"

Nay, the possibility of experience itself depends on the validity of certain cognitions which must be the property of the mind alone. For from what source, independent of the universal laws of the intellect, can these principles spring, which recognize the validity of experience? They cannot be derived from the fortuitous teaching of that experience whose trustworthiness they affirm, and they must consequently be the genuine offspring of the understanding. The principles of pure Mathematics are characterized by *necessity* and *universality*—properties which cannot possibly be given in the limited and fortuitous teachings of the sensible world. These can indeed inform us that a thing *is*, but not that it *has been*, *is*, and *will be*, in consequence of the universal necessity that it MUST be, which are the clearly conceived characteristics of Mathematical truths. The laws of the sensible world may change, and phenomena occur in violation of all past experience ; there can be imagined a time when the sun shall no longer rise in the eastern and set in the western heavens ; but there can never come a time when two parallel lines can meet, or two straight lines enclose a space. Pure Mathematics, therefore, furnish striking instances of intuitive truths as eternal as the intellectual principle itself, and present a brilliant example of the almost limitless extent to which the mind can develop clear and abiding knowledge, independent of the laws of the external world.

2. The principles of *Applied Mathematics* are generalizations from experience, which, by the application of pure Mathematics, are elevated to the rank of universal truths that constitute the basis of sciences commonly classified with those of pure reason. The principles of pure Mathematics are *pure, a priori* truths ; those of the physical sciences founded on Mathematics, contain elements of experience. The truths of pure Mathematics are absolutely universal and necessary ; while the fundamental principles of Applied Mathematics are universal only on the assumption of permanence in the operation of nature's laws. Of the former we are assured that they must be, of the latter we know only that they MUST BE *under the present condition of things.* To this extent these principles are universal and necessary, and by the aid of those of pure Mathematics, have become the elements of sciences which, as I have already said, are classed as rational. Now, *Applied Mathematics* affords a striking illustration of the application of pure Mathematics to the varied phenomena of the Universe, and exhibit in a remarkable degree the harmony of deduction and induction as methods of investigation, as well as the power of the former to aid the latter in bringing the contingent and variable within the compass of universal laws. These laws are sometimes *clearly* indicated by a few well-observed facts, and do not seem to require the aid of pure science to demonstrate their universality. But even in these instances, Mathematical investigations frequently indicate the existence of phenomena overlooked by observation, and show the assumed law to be more gen-

eral than mere experience had indicated, by demonstrating that certain facts considered as consequences of other and unknown agencies, are the legitimate results of the already discovered law. But in many instances the law is only faintly pointed out by the observed facts, or suggested by a fortunate anticipation of genius, and Mathematics are needed to verify its claims to be ranked as a GENERAL LAW, by submitting the deductions logically derived from it to the test of coincidence with observed phenomena. Thus the logic of induction as applied to external nature, is eminently aided by the logic of pure Mathematics; the former often indicating laws beyond the scope of the latter, while, on the other hand, the latter gives them their character as general laws, and guides experience to results it would otherwise never reach. Hence, while pure Mathematics constitute a world of ideas independent of material forms, applied Mathematics grasp the phenomena of the material world as the tangible forms of the pure ideal, and show the harmony between the world without, and the inner world of thought. If the Mathematics of the world of mind, exhibit the "harmony of thought with thought," their application to external phenomena demonstrates the harmony of thought with existence, and secures to intelligence its conquest over matter. We can thus understand the importance of the knowledge given to the mind by the application of Mathematics to the investigation of external phenomena—a knowledge which alone can dispel the mists that hide the treasures of nature from our intellectual vision—which wrests the universe from the grasp of an inexorable fate, and with reverence places it before the THRONE OF GOD.

3. *Mathematical Principles and Propositions are Synthetic—leading to New Truths.* It has sometimes been said that Mathematical propositions are merely analytic—that they only resolve conceptions into their contained elements, and consequently furnish the mind with no new truths. It may be admitted that there are certain axioms and definitions in Mathematics which are identical propositions; but most of these are only minute links in the chain of method, and are not absolutely necessary to the development of the Science. Every principle really necessary in Mathematical investigation is a synthetic proposition: the predicate is not affirmed of the subject through the principle of identity, as something necessarily given in our conception of it: but on the contrary, the predicate is added as a new attribute to the contents already cogitated in our conception of the subject. For it appears evident that Mathematics could not possibly have been developed, as they undoubtedly have been, into the most perfect of the rational sciences, by combining merely identical propositions. Even the fundamental propositions of arithmetic are not identical propositions. For, to use an illustration from Kant, in the addition of the simplest numbers, does the simple cogitation of their *union*, evolve the conception of their *sum?* The conception of such a union can

never give the required predicate, and the synthesis must be effected by intuitions supplied by external objects. It is the same with the primary truths of pure Geometry. The proposition, three straight lines may enclose a space, is not an assertion of identity. For by no *analysis* of the subject—one conception of which (straight) is merely *qualitative*, the other (line) a quantity of but *one* dimension—is it possible to evolve the conception of a quantity of *two* dimensions, and the proposition is therefore synthetic. And thus we might show that every proposition essential to the establishment of the pure Mathematical sciences, is a synthetical or augmentative proposition. If such, therefore, is the real nature of Mathematical propositions, the science itself must be augmentative. and hence appears the unfairness of the assertion that as wholly *given* in its principles, its procedure is merely *explicative*,—the simple evolution of a potential into an actual knowledge—and that therefore it can be of but little worth as an exercise of the higher faculties of mind. The worth of this philosophy can be easily illustrated. Take the definition of a circle; this definition includes all its properties; one property is that the circumference is to the diameter in the approximate ratio of 3·1416 to 1: is this recondite property given in the definition, so that it is conceived by a mere "negation of thought?" On the contrary, it was discovered only by a train of complicated reasoning, and it is a mere perversion of language to say that it formed part of the concept *circle*, before it had been discovered by mathematical investigation. Every science worthy of the name must proceed from certain principles, and may in one sense be said to be given in its principles; but are its highest developments therefore attained with a minimum of thought? The pure Mathematical sciences are indeed founded on principles which are immutable and given intuitively; but *their law is progress.* They proceed from their primary conceptions to the most comprehensive generalizations—from the simplest abstractions to the highest within the compass of the human intellect—and yet we are asked to believe that they do nothing more than evolve the truths *contained in* their principles! If the objection has any weight when urged against Mathematics, it is equally valid against all the rational sciences, and especially against Metaphysics. For the very possibility of mental science seems to depend on the existence of propositions similar to the *a priori* synthetic principles of pure Mathematics. It is the province of Metaphysics not to analyze conceptions of things, but like Mathematics, to proceed from the synthetic judgments of the reason, to enlarge their boundaries by combinations with others, till organized knowledge takes the place of isolated principles. It is true that Metaphysics, either from error in method, or from the tendency of reason to attempt the solution of the insoluble, have never attained that certainty which distinguishes mathematics. But surely the latter are not of less worth because instead of groping in obscurity on a sea of doubt, they are constantly making unerring progress on the great ocean of truth.

4. *But the Method of Mathematics is as rigorous as its principles are sure.* Proceeding from intuitive truths by logical reasoning, we discover new truths which are in turn to become the *data* for higher and more complicated results. Not only the premises but every succeeding step in the reasoning is cautiously examined. In all Mathematical investigations, "even those of the poorest and most meagre form," the mind is *habituated* to resolve every train of reasoning into steps, and to make sure each step before proceeding to another. If practice in such reasoning "gives us nothing else, it gives us wariness of mind;" it accustoms us to demand a sure footing: and though it leaves us no better judges of ultimate premises than it found us (which is no more than may be said of almost all metaphysics), at least it does not suffer us to let in, at any of the joints of the reasoning, any assumption which we have not previously faced in the shape of an axiom, postulate, or definition." Nor can any error be *incorporated into* the science; for though a mistake may be made in effecting the synthesis between the known and the unknown terms of a proposition, the results, either directly or indirectly, indicate a fallacy in the reasoning, and the error must be corrected before further progress can be made. Such then being the nature of mathematics, and such the character of *their method*, we are prepared to understand their perfection as a science. It is a science whose foundations cannot be shaken by any possible revolutions of experience, and whose symmetry and beauty can never be obscured by the gloom of scepticism: it stands forth, a world of pure ideas, supreme over the fluctuations of the world of sense—the genuine creation of the understanding.

Having thus glanced at the nature and method of Mathematical Science, let me refer briefly to the *general* influence which they may be supposed to exert on the mind.

When uncertainty and contradiction in so many other departments of investigation, incline us to despair of the attainment of truth, Mathematics, in their wonderful certainty, in the almost measureless extent of the truths they reveal, in the marvellous power over the secrets of the universe which they give, furnish undoubted evidence of the possibility of knowledge, and a standing refutation of philosophic scepticism. Dealing with necessary truths, in the study of Mathematics, the mind becomes familiar with their nature as independent of sensuous impressions, and acquires a knowledge that has all the marks of a true science. Instead of looking in bewilderment at the every-varying phenomena of the external world, we are enabled to discover, by the application of Mathematics, the general laws which underlie all changes, and clear and abiding knowledge takes the place of isolated, perplexing facts. Looking toward the arena of Metaphysics, and beholding the unending warfare of systems which is there exhibited—a warfare in which no victory has ever yet secured permanent possession—we may well doubt the possibility of a true science of mind. But turning towards the brilliant success of Mathematical science, which like Metaphysics, is a science of *a priori* truths, we confidently look for the time when a true method shall be found to guide us to the solution of the great problems which have so long baffled human reason, and which still knock for answer at the human heart.

To this result I have no doubt, the judicious study of Mathematics will contribute. Elevated beyond mere sensuous impressions, the mind is constantly contemplating those pure forms which are its own creation, and therefore independent of matter and its phenomena. Does not this contemplation of the pure ideal qualify the mind for the examination of its own attributes? To grasp and analyze the phenomena of mind, we must rise above the physical and concentrate attention on the mental—the world of thought; and to accomplish this the highest degree of the power of abstraction is required—abstraction is the only method, the only guide to success. And thus the processes of Mathematics which, as already said, are constantly familiar with a world of supersensuous ideas, and which develop to its highest range the abstractive powers of the intellect, must eminently prepare the mind for the investigation of its own activities, and contribute materially to the development of a true science of mind.

It has been said that, "in consequence of their disqualifying us for the examination of moral liberty in the soul, and familiarizing us with the phenomena of a mechanical necessity in nature," mathematics induce scepticism relative to the spiritual or moral world. Now, there is nothing in the habits of thought engendered by the study of either pure or applied mathematics that would pre-dispose the mind to such scepticism. On the contrary, I hold that the very reverse is the case, because the study of mathematics, pure and applied, tends to the *exaltation of mind* and the *subordination of matter*—to magnify the spiritual and subordinate the material. The voluntary energies of mind are necessarily brought into prominence by the study of pure mathematics. Independently of the material world, the mind, by its own creative energies, constructs a supersensible world—does the process tend to the "negation of a hyperphysical and immaterial principle of thought?" In fact, mathematical idealism is opposed to metaphysical materialism. After contemplating the eternal truths of the pure mathematics—exploring a boundless world of the pure ideal called into being by its own free and independent energies—the mind becomes conscious of its creative energy—of its personalty—and feels its worth as an intelligence elevated even to infinitude.

With reference to the phenomena of the material world, it might seem that their exclusive study by giving undue prominence to the physical, may tend to degrade the immaterial. But these phenomena can be profoundly investigated only by the application of pure mathematics, and therefore it may be replied that mathematical idealism will correct the tendency, if such exist, towards materialism induced by the earnest investigation of external phenomena. While, therefore, the exclusive study of these phenomena may induce, in the mind of the non-mathematical observer, the belief that everything is the result of a "mechanical necessity in nature,"—the decree of an inexorable fate—a different effect is produced in the mind of the mathematical observer.

But I hold that in the *applications* of mathematics to investigate nature, the dignity and superiority of MIND are still proclaimed. For the triumphs which the human race has won are still the triumphs of *mind.* It is *mind* that passes in review nature's grand domain, and with authority demands the surrender of her secrets and her treasures. It is *mind* that has penetrated the star-depths, where suns and systems pursue in harmony their everlasting march. It is *mind* under whose forming power the world wears the aspect of a new creation, in which the impress of the finite *human mind* blends with that of the Infinite and Divine.

Since, then, the study of mathematics tends to give pre-eminence to the mind—to demonstrate the transcendent power of the thinking principle whatever that may be—it cannot fairly be maintained that they pre-dispose to scepticism as to the spiritual or moral world, and to a denial of the existence of the ETERNAL MIND, whose thoughts are embodied in the universe, and of which the investigating mind is but the finite reflex—the dim and shadowy reflection. Nor do I believe that applied science, by revealing the mysteries of nature to the common gaze, will so "reave the heaven of its divinities and disenchant the universe," that admiration and reverence shall find place no more in the human heart. On the contrary, seen under the light of science, the manifold wonders of the world around us, and the majesty of the heaven above us, kindle a sublimer admiration, and become objects of a still profounder "adoration to an infant world." Guided by the light of science, the mind surveys the phenomena of nature, and beholds in the impress of intelligence everywhere apparent—not the mere reflex of organization—but the wisdom of the Great First Cause. If the wondrous mechanisms displayed in material organisms suggest the operation of a personal intelligence to the ordinary observer, probability gives place to demonstration under the clear, steady light of mathematical science.

If, for example, the human eye alone, as has been said, be a cure for atheism, how sublime its teachings when all its perfections, as exhibited in the adaptability of means to end, is revealed by the magic hand of science! It is capable of demonstration, that in all the varied organizations of the natural world, wherever velocity is to be secured, or power generated, or adaptation to natural laws effected, the most perfect means are adopted—means whose conception indicates omniscience, their execution, omnipotence. Thus the application of mathematics to the familiar phenomena daily within the scope of our observation, brings into a pre-eminence attainable by no other means, the wondrous *design* universally exhibited, and leads the mind from the design to the all-wise Designer—from the law to the ETERNAL LEGISLATOR. Passing beyond the phenomena of our earth, which after all, is but an atom of the universe, directed by the pure light of mathematical science, we behold the gorgeous majesty of the Heavens, and the conviction of *God's* existence strikes us with the certainty of demonstration. By this science alone does the universe give a clear reflection of its Creator's power. To the unmathematical observer, the mechanism of the heavens is shrouded in obscurity, or stamped with imperfections.

A superficial view of its architecture, may produce a doubt of its perfection as the work of an infinite intelligence, since it appears to be marked with variations, which threaten its stability. But seen under the light of mathematical science, every change becomes constancy; every diversity, uniformity. The supposed irregularities which charterize the motions of the heavenly bodies, are shown to be the necessary consequences of the great commanding law, established for the government of the universe, and, instead of indicating instability in the system of worlds, are alsolutely necessary to preserve it from dissolution.—While, therefore, pure mathematics elevate the mind above the sensible world, into a world of its own creation, in which the spiritual is pre-eminently exalted in conceiving pure forms, and contemplating the beauty of everlasting truths, applied mathematics disclose the glories of the universe as the embodied thoughts of the infinite mind in whom all things "live and move and have their being,"—they unveil the *terrestrial*, and it points to a *God*—they pour a flood of light into the celestial, and "the Heavens declare His glory and the firmament showeth his handiwork."

II.

Let us now proceed to notice more particularly, THE VALUE OF MATHEMATICS AS AN INVIGORATOR OF THE INTELLECTUAL POWERS.

(1.) *And first as to memory.* That the faculty of memory is highly cultivated by the study of mathematics appears evident from the method of their processes and the unity and extent of the knowledge they embrace. In consequence of the necessary connection of principles which gives the science its peculiar unity, the memory must be constantly ready with previously acquired knowledge, to assist the reason in its efforts for the discovery of new truths. For if any of the previous truths be forgotten, the numerous results founded upon them, cannot be attained, and the mind is forced to return to the forgotten truths, till they are made thoroughly its own. Hence appears the error of the assertion, that the mind is required to retain only its last results as a foundation for further investigation, and that thus the memory becomes "stupified" from want of exercise!—To believe the assertion, originated in a speculative unbelief of the utility of the science, that mathematics tend to stupify the memory, requires a credulity born of dense ignorance of the subject. The synthetic process of pure Geometry demand the constant exercises of this faculty; for how can there be *progress* unless memory supplies the necessary principles from those already attained and classified by the understanding. From the comparatively few first principles of the science, we proceed to the more elementary propositions, and thence to higher truths, till a perfect web of pure science is produced by the necessary laws of thought. And, since every succeeding proposition depends upon many preceding ones which are absolutely necessary to its demonstration, and establishing new truths,—exercises which form a leading part in every mathematical training deserving the name. It is said that we are required to remember only the results deduced and not the trains of reasoning involved? Then we cannot claim to have received a truly mathematical training, and the science cannot justly be held responsible for results which it never had the opportunity of accomplishing. Still, even under this assumption, the memory is exercised, though certainly not to so high a degree as a rational training in the subject would ensure. For so numerous are the results deduced—the rules and formulas and principles—and so frequent and necessarily are they employed, that the constant exercise of the faculty of memory is imperatively demanded. But is the charge under consideration of any greater weight, when urged against arithmetic and the analytic methods? I reply in the negative. From the primary operations of arithmetic—from the multiplication table—to the highest applications of the Calculus, a necessary condition of progress is the distinct recollections of the results already acquired. Is it said, that in arithmetical investigations "the second mark being discovered, we no longer think of the first," and therefore, but little exertion of memory required? I ask how do we arrive at the discovery of the second mark, but through the active exercise of memory? Every process of the kind, is but the evolution of new truths from principles, which having been once discovered, are rendered effective for higher investigations, by a trustworthy memory. As to the algebraic analysis, even admitting, that as soon as the second mark is discovered we ignore the first, does it follow that the faculty in question is not exercised, or if at all, only in the lowest possible degree? Is the mind driven onward, by an irresistible agency, through a series of processes and results, in which it is a "mere spectator?" On the contrary, all algebraic investigations, like those of arithmetic, but still more imperatively, are founded on results previously deduced, and must call into continuous exercise the retentive powers. But it is of no more true of mathematical reasoning than of any other, that the second mark being discovered, we no longer think of the first. In any process of reasoning, whatever be the nature of the truths involved, it is necessary, or even possible, to recollect at *every instant*, all the results previously obtained? Or do we not rather, withdrawing our attention from steps already taken, concentrate our energies on those about to be taken, and recall previous reasonings when necessary, by a special exertion of mental power.

In the transformation of equations—a process which at first sight may seem to demand but a slight effort of this faculty—it must furnish the materials for ingenuity to work upon, and bring up from its depths the principles necessary to effect the synthesis of the known with the unknown. And, in the investigation of general principles it is exercised in a still higher degree. For, though its individual principles are analytic, the science as a whole is synthetic—it proceeds from the simple to the complex—and therefore every investigation depends on a multitude of preceding truths which memory must be constantly ready to supply, or the desired results, with the consequences that flow from them, are completely unattainable. Thus it may be shown that each of the mathematical sciences demands as an indispensable condition of its attainment, the vigorous exercise of the faculty in question.

But as each of the mathematical sciences possesses a logical unity which absolutely compels the exercise of memory, so the same unity binds them all into an harmonious whole, and hence the farther we progress in the boundless realms of knowledge they spread before us, the more completely is this faculty cultivated and its tenacity and power increased. Each branch of the science has certain principles peculiar to itself, but in addition to these, it demands the truths already demonstrated by subordinate departments, and therefore an abiding knowledge of these truths is absolutely necessary. From these and like considerations, which, if time permitted, might be abundantly illustrated, it seems clear that mathematics *demand* the constant exercise of memory, and stand pre-eminent as an invigorator of its powers. Yet it has been asserted that instead of exercising the memory, they actually dwarf its powers. I have no doubt that every man who has anything more than a superficial knowledge of even the elementary branches, will acknowledge the groundlessness of the assertion, and consider it but another instance of the fallibility of metaphysical speculators: especially when, like the sophists of old, they lay claim to universal wisdom, and dogmatize on subjects of which they are either totally ignorant, or view only through the distorted vision of the bigot.

2. *But Mathematics also cultivate in a high degree the powers of abstraction and generalization.* Although quantity in its general sense, is the object of mathematical investigation, the conceptions involved are not connected with material substance nor limited by its finite nature. They are the product of the reason itself, and possess an immutability and a universality that cannot originate from material

forms, though they may comprehend them. Sensible objects may give us our first ideas of numbers, but the mind soon passes to the abstract conceptions, and the particular is comprehended in the universal. So intuitions may be supplied, in the first instance, by imperfect geometrical figures, to give the mind conceptions of fundamental definitions, but the perception of the particular figures fades away, to be replaced by universal conceptions. In the first stages of the algebraic methods, material objects may be used to aid the mind in gaining clear notions of the things considered; but no sooner does the mind obtain these notions than it loses sight of the particular and grasps the general. The language employed in analytical investigations is eminently suited to the pure abstractions involved—presenting ideas entirely unnconnected with material objects,—it is yet capable of representing such objects,—universal in power it is equally applicable to the particular. Every principle in the most elementary of the mathematical sciences is founded on abstraction; every successive stage is reached by a still higher effort of abstraction, while the fundamental principles and ultimate results of the calculus and its applications can be attained only by its highest possible development. This power of mathematics to cultivate the faculty of abstraction establishes one of its most important claims to a high position as a means of intellectual discipline. For the faculty of abstraction is undoubtedly connected with the loftiest efforts of the human mind, whether directed to the attainment of moral or intellectual truths. It is the foundation of intellectual and moral philosophy, since the phenomena of the mind, varied, complex and transient as they are, can be carefully observed and truly investigated only by a high degree of abstractive power.

But, in the power of generalization, as well as abstraction, cultivated by the study of mathematics, or is there no generalizations in the sciences, as some assert, because their universal truths are not derived *a posteriori* from experience?

In the opinion of some philosophers, abstraction necessarily implies generalization. Without adopting the view that there can be no abstraction without generalization, since it seems evident that the mind can contemplate certain abstracted qualities of any object, without necessarily establishing a class whose essential marks are given in these qualities, it must be admitted that abstraction is the foundation and necessary condition of all generalization,—abstraction gives the elements of the concept; generalization moulds them into convenient forms as materials of thought. Hence as mathematics pre-eminently cultivate the power of abstraction, they must qualify the mind for generalization. Admitting that, in obtaining our first conceptions of geometrical truths, "the general is viewed in the particular," the power of abstraction is necessary to give the mind the pure notion which enables it to dispense with sensible objects, and lay the foundation of a pure science. If it be said that the object is still presented to the mind, as a concrete form, by the immagination, I reply that abstraction is necessary to enable the mind to grasp the general as an *a priori* intuition, before the imagination can present the concrete as the representative of the *universal*. And further, in recalling *any* conception to the mind, do we necessarily view all the marks given by abstraction and generalization in the formation of the conception? Do we cognize the general as it is, or grasp it in the particular? It is believed that, though the mind can, by a special exertion of its powers, view the general in its comprehended marks, a particular object is usually recalled as a representative of the class, though with the consciousness that the *individual* possesses many attributes not given in the conception of the *class*. In all the higher geometrical investigations, we are constantly within the confines of the universal—is the universal reached without the generalizing power? In the fundamental propositions and principles there is a classification, and from these the science is unceasingly discovering properties peculiar to distinct classes of conceptions—does not this process of development involve the principle of classification and the power of generalization?

Generalization is also a characteristic feature in Analytical Geometry, "Every process,"—to use the language of J. S. Mill—in Universal Geometry "is a practical exercise in the management of wide generalizations, and abstraction of the points of agreement from those of difference among objects of great and confusing diversity, to which the most purely inductive science cannot furnish many superior." If we pursue the synthetic method of investigation, we shall find that every result, though so far general that it includes a multitude of particulars, is relatively particular, and can be shown to be comprehended in results still more general; and hence every step of our progress demands the exercise of the power of generalizing. Investigating, for instance, the equation of any of the conic sections, we obtain a general expression comprehending a great number of truths—proceeding with the investigation of a second, another result is found equally comprehensive and equally general, and thus, for each figure of the entire class; but the results, though exhibiting each the special property of the conic to which it refers, have nevertheless common characteristics which facilitate their combination into a general expression embracing all the results separately deduced from the independent equations; and if we follow the analytic method, a high degree of abstraction is necessary to enable us to clearly comprehend reasonings founded on conceptions so comprehensive.

But is it true that the analytic methods employed in Algebra and the higher mathematics, do not cultivate the power in question, because they substitute a sign for a notion and thus relieve the mind from all intellectual effort? I think not. For though it may not be always so necessary in analytical as in geometrical investigation, to keep in view for the purposes of comparison, the results deduced, a high degree of mental effort, aided by accurate discrimination, is required to enable us to select from the many preceding generalizations, and skilfully apply, the principles necessary to effect the desired synthesis. It is true that the analytical methods, for their precise notation, and higher power of generalization, simplify many geometrical investigations—or rather attain, in a comparatively simple manner, results which geometry can give only by long and cumbrous processes—but the utility they thus lose as an invigorator of the mind, is more than restored by their wondrous powers of bringing within its grasp, truths which otherwise would be completely unattainable. But in any process of abstract reasoning, do we constantly cogitate the general conception in its essential marks? Or do we not rather use "a sign for a notion," by elevating words to the rank of thoughts? Unless we did so, how complicated would be our mental processes, how unsatisfactory their results, since the difficulty of reasoning increases with the abstruseness of the abstractions involved. So it is with the language of the higher analysis. The reasonings are upon abstract conceptions so comprehensive, that the relation between their successive steps cannot be understood without a vigorous intellectual effort. And though arbitrary symbols are used in analysis, the student must have so clear a conception of the things signified, and their complicated relations, that he is constantly prepared to translate into ordinary language, or interpret by geometry, the results deduced, or he certainly cannot be said to know the subject of investigation. Does the difficulty of any process of reasoning increase with the degree of abstraction and generalization of the terms employed? Then analytical investigations must demand a very high degree of mental activity, since they employ the most comprehensive generalization, and are capable of representing in a single view processes and results which would require pages of ordinary language for their elucidation.

As before shown, every first principle of arithmetic and ordinary algebra must proceed from abstraction, and every succeeding principle is a generalized result—from the contemplation of particular examples we attain the general, the universal truth. Every student of the science, has at the outset of his course, experienced the difficulty of rising from the particular illustrations to the universal principles, in consequence of the generalizations involved requiring a higher effort of abstraction than his comparatively undeveloped powers can easily attain; but from the cultivation this faculty receives by thorough progress in the science, he ultimately comprehends truths involving a higher degree of abstraction, with greater ease than he had mastered its elementary principles. But the generalizations of the higher analysis and geometric methods, demand a pre-eminent degree of mental energy.—The fundamental principles of those sciences are the result of generalization, or reached only by a high degree of abstraction, and as every demonstration is a generalizing of abstract conceptions, or the analysis of the universal into its comprehended elements, thorough progress cannot be made without a constant exercise of the higher faculties of the mind. By methods of investigation essentially geometric, though aided by analysis, Newton effected the solution of the Lunar inequalities—a problem which had mystified the philosophers of all preceding ages—is there no generalization in the results which comprehend these complicated movements? By a more extensive application of analysis, the dynamics of the planetary worlds may be represented in a single view,—does the evolution of results so comprehensive involve no generalization? But it seems to me quite unnecessary to enter into a lengthened defence of the utility of mathematical science as an invigorator of the powers in question, when the origin of its principles, the method of procedure, and its highest developments, are comprehended in two words, *abstraction* and *generalization*. It may be said that mathematical abstraction and generalization, are different from those of common observation and experience, and therefore they do not cultivate the higher intellectual faculties. We admit that mathematical processes evolve truths characterized by an immutability that can never distinguish the generalization of the world of probabilities. But the *mental powers that abstract and generalize are the same*, whether directed to the investigation of *necessary* or *contingent* matter, and they surely cannot be less efficiently cultivated in the one case in consequence of their attaining clear and certain results, than in the other, because they are limited by probability.

3. *But the study of Mathematics is of great value as correcting the vice of mental distraction, and forming the opposite habit of continuity of thought.*

The importance of early forming the habit of deliberate concentration, can hardly be too highly estimated. In the commencement of all intellectual effort there is difficulty, and the success attending such effort must be in proportion to the power of continuous thought we are capable of exercising.

For, when we first direct our attention to subjects of investigation, our minds are distracted by numerous extraneous thoughts arising from the manifold circumstances that surround us, and we are thus prevented from bringing our intellectual energies fully to bear upon the subject. Nor is the difficulty overcome by a simple exertion of will. Even when we feel the necessity of concentrating power for the accomplishment of our object, and determine to exclude all distracting elements, a thousand obtrusive notions will spring up to confuse our thoughts and dissipate our energies; and for a long time even after the subject of investigation begins to allure us by presenting interesting thoughts for contemplation, the glimmerings and associations of preceding reflections will obtrude themselves and prevent the full and free exercise of our intellectual powers. When opposed by these obtrusive elements, is it possible for the mind to energize freely and successfully prosecute difficult investigations? Can it reach its highest attainable success when its operations are impeded by distracting thoughts, and its energies dissipated by efforts to concentrate its powers upon the object in view? On the contrary, the *habit* of concentration must be acquired before the mind can energize with the probability of attaining the highest success within its reach. But this can be accomplished only by time and frequent practice in the effort. The first effort at concentration is attended with great difficulty; but power is gained by repeated effort; every succeeding effort will become less difficult than the preceding; the elements of distraction gradually diminish in frequency and power, and at last the mind can almost involuntarily concentrate its energies upon its object, and attain its highest pleasure and most certain results, in the unimpeded operations of its powers. So important is this power of continuity of thought, that some have considered it identical with genius, while all admit that it is an invariable concomitant of genius, and a necessary condition of its greatest achievements. Sir Isaac Newton, with his usual modesty, attributed his success, not to the force of superior genius, but simply to his power of patient attention. "Genius," says a celebrated philosopher, "is only a protracted patience." Granting that there may be great powers of mind without a corresponding power of concentration, they cannot accomplish great results; but on the other hand, mediocrity accompanied by a high degree of this power may be elevated almost to the rank of genius.

Now, in Mathematics, we are accustomed to emancipate ourselves from the disturbing influences that surround us. We *must* concentrate attention on the truths bearing on the investigations, or there is no possibility of reaching a successful issue. The mind is required to keep constantly before it a vast number of already established premises, and to exercise its powers in the selection and application of those specially adapted to the end in view. And as the connection between the successive steps is, in general, difficult to grasp, in consequent of the abstract nature of the conceptions involved, the continuity of thought necessarily required must be both intensive and extensive—intensive, as requiring a high degree of mental power to grasp the conceptions and their relations; extensive, as involving the contemplation and analysis of a large number of distinct, though related truths. But the fact that a high degree of abstractive power is required—as already shown—in both elementary and advanced Mathematics, proves conclusively their utility in cultivating the power of continuous thought. I may remark, in preparing the mind for the careful contemplation of its own transient phenomena. The habit of concentration, to which I have referred, can be formed only by acts of "patient attention" which gradually increase in difficulty. This is accomplished by the study of Mathematics. The elementary propositions *demand* a certain amount of concentrative power, and every successive step demands a somewhat higher degree in consequence of the greater difficulty and the greater number of the terms involved, and from this constant repetition and exercise, commencing with the simpler acts and rising gradually to the more profound, the power of continuous thought is increased to a higher degree than can be reached by any other course of discipline. If it be said that Mathematics, from the very fact that they *demand* a degree of continuity of thought in their most elementary propositions, are thus unfitted to remedy the vice of distraction, we reply that if there be any possible corrective discipline, it must be such as begins with the simpler efforts of the power of continuity, and gradually proceeds to the more difficult and prolonged ; and the mind that *cannot* exert concentration sufficient to master the elementary propositions of Mathematics, though it may sometimes give evidence of latent power, will never be likely to attain by any other means this invaluable habit of mind.

4. The study of Mathematics developes the *power of observation*, and cultivates the *imagination*, whether considered as a representative or a creative power. By observation we mean the power of fixing attention on material or mental objects so as to note their distinctive properties, and their points of resemblance and of difference. From the most elementary Mathematical notions to the highest range of Mathematical investigation, this power is exercised. Even the first notions of number and of form which underlie Arithmetic and pure Geometry, are acquired by observation. Nor is it alone in securing the fundamental notions of number and form that observation plays so important a part. "The very genius of common Geometry is that it is but a series of observations. The figure being before the eye in actual representation or before the mind in conception is so closely scrutinized that all its distinctive features are perceived, auxiliary lines are drawn (the imagination leading in this) and a new series of inspections is made ; and thus aided by direct simple observations, the investigation proceeds. So necessary is observation in Geometry that Comte, the ablest writer on the philosophy of Mathematics, is disposed to class Geometry—in the view of its methods—with the natural sciences, as being based on observation. When we consider applied Mathematics, we have only to notice that the exercise of this faculty is so essential that the basis of investigation, the very materials with which we build, have received the name *observations*.

Further, the *representative* power of *imagination*, as constantly exercised in presenting to the mind intuitions of space, and the complicated relations of external things, must be greatly strengthened and developed ; and the beauty, order, and harmony disclosed in terrestrial phenomena, and in the starry regions where worlds on worlds arise, must permit abundant materials for the exercise of its creative powers. And this creative faculty has constant exercise in all original Mathematical investigation from the solution of the simplest problem to the discovery of the most recondite truths; for it is not by intuitive, consecutive steps that we advance from the known to the unknown, the imagination, rather that the logical faculty, leads in this advance. In fact, practical observation is often in advance of logical exposition. In the discovery of truth, the imagination habitually presents hypothesis, and observation supplies facts which it may take ages to connect logically with the known. That the imagination, and not the logical faculty, *leads* in all original investigations, will be admitted by any student who has ever succeeded in producing an original demonstration of even one of the simple propositions in Geometry.

III.

Let us now proceed to notice the VALUE OF MATHEMATICS AS A LOGICAL EXERCISE OF MIND.

1. *It habituates the mind to the use of correct forms of reasoning.*

However valuable pure logic may be as the science of the laws of thought, its highest utility is realized only in the practical application of its principles. The bare study of the formal laws of thought cannot *exercise* the mind in the forms which it must follow in all sound reasoning. Logic may unfold the characteristics of these laws, and thence deduce the necessary conditions of cogency in reasoning. But the mind can acquire the habit of observing these conditions only by practice in their application, and as affording such practice, mathematics stand pre-eminent. They constitute the most perfect application of pure logic, and especially of the deductive method of ascertaining truth. This method of deduction—of which Mathematics give the most scientific form—is a most powerful instrument in the discovery of truth. The laws of extension and number—that is, the laws of Mathematics—underlie all the other laws of the material universe; and in the great inquiries of the moral and social sciences, Mathematics afford the only sufficiently perfect type. "Up to this time," says Mill, "I venture to say that no one ever knew what deduction is as a means of investigating the laws of nature, who had not learned it from Mathematics, nor can any one hope to understand it thoroughly who has not, at some time of his life, known enough of Mathematics to be familiar with the instrument at work." The logical definition of terms—the explicit statement of premises—the clear and well-defined steps in the trains of reasoning—the exclusion of intermediate propositions the truth of which is not clearly seen—the precise and constant meanings of the terms employed—these are characteristics of the deductive method, which finds its highest type in Mathematics.

But it has been said that the Logic of Mathematics, dealing only wlth necessary matter, and concerned only with demonstrative evidence, does not prepare the mind for researches in contingent matter, that is, to correctly estimate probable evidence. It may be remarked in passing, that this objection is equally valid against Metaphysics and indeed all the rational sciences, which demand not probable but certain evidence.

But the objection has no weight when urged against Mathematical logic For, to say nothing of the fact that the Mathematical theory of probabilities is a most valuable contribution to logic, and lays the foundation for a sound knowledge of the rules of probable evidence, what is to be our guide in estimating probable evidence, but those logical forms of reasoning deduced from the laws of mind, and practically exhibited in their highest perfection in Mathematics? Is pure logic of great value as pointing out the conditions of cogency to which the *probable* argument must conform in order to secure the acceptance of its conclusion as an article of belief? How much greater the value of Mathematics, which demand a continued application of these conditions, and hence educate the mind to a sagacity in detecting error, that the mere study of formal logic cannot impart? When we consider the multiplicity of circumstances likely to invalidate our investigations in the "field of probabilities," we can scarcely think too highly of those methods of discipline which develop so acute a perception of the form and essence of sound reasoning, that the mind is enabled instinctively, as it were, to detect the presence of fallacies. Mathematics proceed from data which have the certainty of necessary truths by a demonstrative process in which the connection between the successive steps of the reasoning is clearly comprehended. No obscure terms, nor imperfectly understood propositions, are either admitted as data or mark their processes. Should not a similar rigor be observed in reasoning on contingent manner? They assume no principle as the basis of an argument, or as a means of effecting a synthesis, whose truth has not already been established, and they submit to the severest test everything having the slightest element of uncertainty. Should not the same method distinguish inquiries in which there is a balancing of probabilities? The highest ingenuity and skill in analysis and combination are required in Mathematical research—surely the same qualities are essential to correct reasoning in matters of observation and experience.

It has been also said that the *matter* and the *method* of Mathematics preclude the possibility of error, and that therefore the science does not, like probable reasoning, educate to sagacity in its detection. But, as already suggested, it is impossible to discover the fallacies of probable reasoning without practical skill in the methods of sound reasoning; and this, the study of Mathematics imparts by rigorous adherence to the forms of strict logical inference. "Let us be assured," says the great thinker already quoted, "that for the formation of a well trained intellect, it is no slight recommendation of a study, that it is the means by which the mind is earliest and most easily brought to maintain within itself a standard of complete proof." It is true that Mathematics have continued to make unerring progress, while contradiction and aberration have distinguished most other sciences and retarded their development. This progress, however, does not prove the impossibility of mental sophistries in Mathematical investigation, but rather that the *matter* and the *method* of the science lead quickly to the detection of fallacies, and prevent the introduction of permanent error. Such fallacies are probably due to the abstract and comprehensive nature of the conceptions involved in the demonstrations; and that their discovery and elimination often require great skill, as well as acuteness and soundness of judgment, is well known to every student of the science. If a vigorous exercise of intellectual power is necessary to grasp such conceptions, a still higher degree of mental energy is required to comprehend their *relations;* and thus the mind is led sometimes to confound abstractions which are really distinct; at others, to assume an analogy where none exists. Hence, if fallacies creep into Mathematical demonstrations *in spite of the logical rigor of their method*, they must be such as are most likely to deceive the mind, and their frequent occurrence—with their discovery and correction—must habituate the student to a discriminating caution which is of great value in the probable reasonings of experience. A mind thoroughly trained in Mathematical reasoning may indeed commit the error of expecting in all proof too close an adherence to the type with which it is familiar; "but he who has never acquired this type has no just sense of the difference between what is proved and what is not proved; the first foundation of the scientific habit of mind has not been laid."

2. But further. *The study of Mathematics requires the exercise of ingenuity, acuteness in discrimination, and caution in the admission and combination of data*, and consequently affords a still more effective preparation for conquering the difficulties and avoiding the dangers in the reasonings of experience. Though Mathematical science is demonstrative—occupied with the deduction of conclusions—we are as often required to establish certain truths to serve as premises for the deduction of a proposed truth, as to deduce the necessary consequences from given premises. These premises are to be selected from the numerous truths already acquired by the understanding, and combined to effect the required proof; and this can be accomplished only by a careful analysis of the proposition to be proved, and an accurate discrimination of the results previously known. A careful examination of the given proposition is needed to guide the mind to the necessary data; accurate discrimination and ingenuity, to select, from the many principles bearing on the question, those necessary and sufficient for the demonstration.

In the solution of Mathematical problems, how is the synthesis between the known and the unknown to be effected, without skilful analysis, acute comparison, and judicious application? The relative bearings of principles previously determined, and their connection with those to be established, must be carefully examined and clearly comprehended as a preliminary to the required solution—does this require no acuteness in comparison and discrimination? The intermediate terms employed in the investigation must be sought among general truths which from their complex relations are the more difficult to distinguish—is there no ingenuity required in the selection and application of those which will lead most directly to the desired result? The very fact of mathematics being a demonstrative yet a *progressive* science proves at once the necessary *connection* yet *distinctiveness* of its propositions, and implies as a condition of progress the constant exercise of the powers in question. Hence as sagacity and skill are required in common reasoning to obtain the needed premises, and ingenuity in analysis and comparison to free them from everything irrelevant to the argument, it seems evident that mathematics must prepare us for overcoming the difficulties by which such reasoning is characterized, and for moulding the isolated facts furnished by observation and experience into the symmetry and stability of science. This seems to receive corroboration from the great success which mathematicians have achieved in the application of the science to external phenomena. For most of the physical sciences are founded on observation and experiment necessarily carried on by mathematicians, and eminently exhibiting subtlety in discrimination and analysis, and skill in comparison and generalization. It is a fair inference, too, that mathematics qualify the mind for observation and experiment, since these sciences owe their origin to mathematical skill in observing and generalizing physical facts, as well as their development to the power of mathematical analysis.

But Mathematics induce a cautiousness in the admission and combination of data which still further fortifies the mind against the fallacies that occur in reasoning on practical affairs. However opposed to the progress of truth violation of the forms of true reasoning may be, a source of error equally fertile is to be found in the rash assumption of false premises, and the introduction of intermediate propositions essentially inadmissible. To be beguiled by the fallacy of *rigorous* reasoning from *erroneous* data, and illogical reasoning from true data, seems to be one of the most common of our intellectual failings. On the one hand, the force of the premises blinds us to the fallacy of the reasoning; on the other, the soundness of the reasoning leads us to lose sight of the falsity of the premises. Now, the primary principles of Mathematics are clear and certain, and stamp the conviction of their realty as soon as comprehended by the mind; and no proposition is admitted unless its certainty is clearly recognized as a first principle, or as a clearly established truth. The mind is trained to the examination of premises.

Even in the elementary branches, a vigorous exercise of mental power is needed to fully apprehend the data; while the first principles of the calculus and higher branches of pure Mathematics, are products of a very high abstraction, and the ultimate propositions and the trains of reasoning involved demand the exercise of great intellectual power. Are the fundamental propositions of Applied Mathematics, which are rendered more complex by the union of conceptions from physical laws with the difficult abstractions of pure Mathematics—*passively* received? Dynamics, Optics, Acoustics, Astronomy, Electricity and other sciences in which analysis reaches its highest applications—do their principles condemn to mere "mental inertion"—their highest development to an absolute "minimum" of thought? Hence it appears that mathematics exact the critical examination of data as a necessary condition of conquering their difficulties; we *must* concentrate our attention on first principles till these are fully comprehended and become genuine elements of knowledge; thus trained, we acquire —not a "blind credulity," but a *habit of caution* in the admission of premises.

But if their utility is great, in guarding us against error in data, it is still greater in fortifying us against fallacies in *reasoning.* On this point little need be added to what has already been advanced. There appears to be in the human mind a natural tendency to perceive resemblances where none exist, and to be led astray by false analogies. Hence the necessity of caution in admitting the connection between the successive steps in any argument. Now, granting for a moment that mathematics preclude the possibility of sophistry in thought—tolerate no false analogy from deceptive resemblances—the successive steps in their processes must be immediately comprehended as necessary. Hence the mind becomes habituated to the evident connection between them, and hesitates to admit their validity when it does not clearly perceive their relation. Is there not thus formed a habit of caution which is of the highest importance in the reasonings of experience? If we refuse to sanction any step in the reasoning till we clearly comprehend its logical connection with the preceding one, do we not adopt the surest possible safeguard against a fruitful source of error?

But, as before stated, I do not believe that mental sophistries are excluded from mathematical reasoning. Owing to the abstruseness of the conceptions employed, there is danger of including something irrelevant, excluding something comprehended, and supposing an analogy where none exists. And since these fallacies occur in spite of a *rigorous method*, they must be such as arise from the admission of false premises or propositions; and the frequency of their occurrence, and of their discovery and elimination, must develope a *habit* of caution in the examination of connecting propositions till their relevancy is plainly seen.

I think, then, I am justified in maintaining the value of mathematics as imparting habits of caution in the admission of premises and intermediate principles. And yet it has been asserted that their tendency is to develop a blind credulity and an uncompromising scepticism! If any Mathematician has exhibited a blind credulity in the admission of erroneous data and the deduction of extravagant conclusions, it must have been *in spite* of his mathematical training, and not in consequence of it. The *post hoc, ergo propter hoc* style of argument has been a common weapon with the speculative opponents of mathematical discipline. Mathematicians have sometimes proved unfortunate in the management of their business affairs, and forthwith mathematical discipline is charged with the failure, and pronounced to disqualify for the affairs of life and for common reasoning. But, I suspect we know of many failures which cannot possibly be traced to the influence of mathematics. Despite the caution and sagacity constantly required in their own science, they have sometimes been too prone to manifest a "facile credence" in the reception of principles and theories which rested mainly on the authority of their originators and supporters; but it would not be difficult to find illustrations of "facile credence" that can hardly be traced to the influence of mathematics. Mathematical metaphysicians have occasionally been guilty of absurd theories in metaphysics; but why should mathematics, rather than metaphysics, be held responsible for the absurdities? Would it not be well to consider the legions of *non*-mathematical metaphysicians who have been guilty of equal or still greater absurdities? The history of metaphysics thus far is a history of mental aberration: are mathematics responsible for the ceaseless recurrence of erroneous systems? The great modern champion of the paramount importance of metaphysical research admits that the "past history of philosophy has, in a great measure, been only a history of variation and error"—have mathematics been the cause of this endless uncertainty?

As to scepticism, I suppose that there is some ground for the long-standing complaint against mathematicians, that they are hard to convince. "But it is a far greater disqualification both for philosophy and for the affairs of life to be too easily convinced; to have too low a standard of proof. The only sound intellects are those which in the first instance set their standard of proof high. Practice in concrete affairs soon teaches them to make the necessary abatement; but they retain the consciousness without which there is no sound, practical reasoning, that in accepting inferior evidence because there is no better to be had, they do not, by that acceptance raise it to completeness."

3. But not only do mathematics educate to the use of correct forms of reasoning, and sagacity in the discovery and correction of fallacies, they educe a general vigor and comprehension of thought which still further prepare the mind for every kind of logical investigation In support of this proposition but little more need be advanced, as I have

already shown their beneficial influence in expanding and strengthening the several mental powers. The first principles of mathematics—especially of the higher branches—though universal and necessary truths are not *passively* received but exact a conscious activity of mind for their clear apprehension ; while the constant exercise in discerning the relations of truths so abstract and comprehensive, tends to the highest development of the intellectual powers. And the application of mathematics to physical laws, necessitates a grasp of mind still more comprehensive ; for which the difficult abstractions of the pure mathematics are combined new conceptions from physical laws which increase the complexity of the data, the abstruseness of the connecting propositions and the consequent laboriousness of the trains of reasoning. Yet it has been said that mathematics call forth but a minimum of thought because the principles are self evident, and every step in their reasonings are equally self-evident, though the discovery of new truths may indicate a philosophic genius ! Such an assertion could never have been uttered by any one possessing a knowledge of the subject beyond its most elementary principles. If by self evident principles be meant such as are *passively* received by the mind, then mathematical principles, even in the mere elements of the science, are not *self-evident* ; and still less the propositions employed in the demonstrations. The fundamental principles of abstract mathematics strike the mind with the conviction of their certainty *as soon as they are understood* ; and the successive steps of a mathematical demonstration are equally self-evident *as soon as their relation is clearly comprehended.* But, as already shown, a vigorous exercise of intellect is required, especially in the higher mathematics, to understand the necessary data, and to comprehend the logical relation of the several propositions, before their *self-evident* nature is viewed in their *necessity* and *universality.*

Is there no energy of thought required to comprehend the successive steps of the demonstrations in the sublime geometry of Newton ? The eleventh section of his Principia has been pronounced by a great philosopher to be characterized by "a spirit of far-reaching thought which distinguishes it beyond any other production of the human intellect" does it require only a minimum of thought to understand his reasonings and to grasp, in all its comprehensiveness the fruitfulness of the results ? By the application of analysis the complicated dynamics of the solar system are brought within reach of the human intellect—do the investigations determine thought to its "feeblest development?"

Nor is it true that though original discoveries and inventions require a philosophic genius, they may, like a fact in chemistry, when once discovered, be reproduced and applied by the dullest intellect. They could be thus easily attained if mathematical reasoning were a series of mere mechanical steps "passively" taken by the mind. But from what has been already advanced, we are justified in declaring this to be a groundless assumption—the utterance of an uncandid critic, or of a novice in the science. The discovery of new truths, or an original application of the old may have been a work of comparative ease to the man of superior genius. But the clear comprehension of the modes of investigation, and the complete appropriation of the discoveries, compel from the ordinary intellect the highest exertion of its powers. This will be corroborated by every student who has made himself master of any important branch of the science. The assertion that the works of the immortal Newton can be mastered by the exertion of a minimum of mental power, is too astounding a paradox to merit serious consideration. In the unquestioned judgment of mankind they stamp him as a philosopher *qui genus humanum ingenio superavis.* They stand conspicuous as the grandest monument of intellectual power that the world has ever seen, and shed a lustre on his age, before which the glories of all preceding times grow dim. They have established a greatness that does not vanish in the mists of years, but is carried onward down the stream of time with a splendor ever gathering from the triumphs of a distinction that can never die. They constitute not the transient and visionary philosophy of an epoch, but the creed of all time, and their author has become not the forgotten representative of a metaphysical sect, but the educator of the human race.

I may add further, that in every mathematical training worthy of the name, the inventive powers, which in their highest degree constitute genius, are called into exercise and fostered in teaching mathematics to the merest tyro. For in every rational training the solution of problems forms an important part—problems which are not mere repetitions of the type—questions given in illustration of principles—but so constructed as to test both the knowledge and the inventive powers of the pupil. This is true even in the simpler branches of the science. In elementary algebra, for example, a great variety of problems can be constructed to illustrate even the simple formulas in multiplication, which require for their solution no small degree of ingenuity. Of course, if problems are merely ceaseless repetitions of a certain type, their solution soon becomes as mechanical a process as repeating the multiplication table. But no mathematical teacher worthy of the name is ever guilty of such palpable cramming ; and no mathematical examiner worthy of his trust, will, by setting questions of this purely mechanical type, commit the serious error of encouraging a system of mathematical teaching which condemns the pupil to a minimum of thought. The thorough teacher and the competent examiner will so direct and control mathematical training as to expand and invigorate the same faculties of the mind, which are of closest kin to those of the greatest philosopher, and which in their highest degrees have produced the greatest discoveries in mathematical science.

4. Mathematics are of scarcely less importance in educating to an *accurate use of language and consequent skill in detecting the fallacies arising from its ambiguous use.*

Though words should be the passive subjects of the understanding, they sometimes, as it were, revolt from its authority, and create universal anarchy in the empire of thought. It is generally admitted that to inadequacy and ambiguity of words, may be attributed a large portion of the errors which ensnare the understanding and impede its progress in the discovery of truth. Among "the four species of idols" which Lord Bacon has distinguished as "besetting the human mind," he ranks the *idola fori*, those which arise from the imperfection of words,—as the most "troublesome of all." He observes "words still manifestly force the understanding, throw everything into confusion, and lead mankind into vain and innumerable controversies and fallacies, hence the great and solemn disputes of learned men often terminate in controversies about words and names, in regard to which it would be better, imitating the caution of mathematicians, to proceed more advisedly in the first instance, and to bring such disputes to a regular issue by definitions." And Locke uses still stronger language in reference to the same subject, attributing to the incompleteness of words, almost all the errors that have obscured genuine knowledge and characterized the disputes of mankind. Though the latter may have stated the case somewhat too strongly, since it seems hardly possible that the solemn responsibilities of life should have been so generally sacrificed in a mere contest about words, it is nevertheless true as stated above that the incompleteness and ambiquity of words have proved a fruitful source of error, and a serious hindrance to the progress of knowledge. Hence the importance of being *accustomed* to the accurate use of words, and skilled in detecting the illusions lurking in their ambiguity. To this, we think, the study of mathematics eminently conduces. Their language is precise and adequate, in consequence of the clear and distinct conceptions which they involve. No word is defective from inadequately representing the conception for which it stands : nor ambiguous from admitting anything extraneous ; all are complete representatives of the things signified, and preclude the possibility of vitiating demonstration either in the admission of any foreign element, or the exclusion of any part of the case under consideration. Does not this constant and necessary accuracy in the use of words, habituate the mind to a corresponding accuracy of language in other departments of knowledge, and educate to skill in the detection of its fallacies? Or, as has been asserted, is mathematical science in consequence of this unerring exactness in its terms, utterly incapable of fortifying the mind against illusions from which it is itself exempt? Must we plunge at once into the reeling tempest of conflicting meanings to become accustomed to accuracy in the use of words? It seems evident that the necessary use of accurate forms of expression must tend to the formation of a *habit* of accuracy. Are we familiarized with the characteristics of the perfect by being first accustomed to imperfection? Are habits of certainty and precision in the use of language, best formed by our being first familiarized with its variable and ambiguous meanings ? On the contrary, admitting the possibility of the formation of such habits by this mode of procedure, they could only be acquired from repeated experience in the illusions of language, and would consequently require the unnecessary expenditure of mental energy.

It is surely far better to enter upon any subject of investigation in which errors are likely to arise through the imperfection of language not depending upon the successive corrections of erroneous results for ultimately creating habits of precision in expression—but already possessing such habits from the constant use of words characterized by distinct, invariable, and adequate meanings. In mathematics, each term is used in the same invariable sense—does not this secure us against the fallacies of *fluctuating meanings ?* No term is employed which is not a full and clear representative of the thing signified—are we not thus guarded against the illusions of obscurity ? No expression involving a plurality of meanings is ever admitted—do we not thus become prepared to detect instinctively the sophistries of ambiguity ? It hence appears that mathematics, in exacting an absolute strictness in their language, must conduce to an accuracy in the use of words and a skill in detecting their fallacies, which enable us, instead of groping in obscurity in the field of probability, to advance steadily amidst the obstructions that surround us, with the greatest assurance of a rapid and enlightened progress.

IV.

Their Value as an Instrument of Material Progress.

The time at my disposal will permit little more than a reference to the objective utility of mathematics as shown in their necessary connection with other sciences, and with the progress of mankind. It may be said that it is illogical to attempt to enhance the value of mathematics as a means of education, by an appeal to their value as essential to human progress. But, in determining " what knowledge is of most worth " in education, it is not only proper but necessary to take into account its influence on material progress. For what is this progress, but the conquest of human liberty and intelligence over matter and material phenomena ? It is certainly a part of the destiny of man to achieve such a conquest. In the earlier stages of civilization, but few of the secrets of nature are given up to man, and material forms contribute but little to his happiness—he does not yet appear as the master of his habitation. But soon the world begins to change its aspect before the operations of intelligence—it surrenders its secrets and its treasures and acknowledges its subjection to its appointed Master. Material progress is therefore but the reflex of intellectual development. Now, it must be admitted that the most effectual triumphs of mind over matter, have been won through mathematics. Take away from what has been secured to civilization through the long struggle of ages, all that is due to mathematics, and we shall be centuries nearer the primitive barbarism of the race. Permit me to give in this connection Herbert Spencer's rapid review of the facts as to the worth of mathematics. "For all the higher arts of construction, some acquaintance with mathematics is indispensable. The village carpenter, who, lacking rational instruction, lays out his work by Empirical rules learnt in his apprenticeship, equally with the builder of a Britannia Bridge, makes hourly reference to the laws of quantitative relations. The surveyor on whose survey the land is purchased; the architect in designing a mansion to be built on it; the builder in preparing his estimates; his foreman in laying out the foundations; the masons in cutting the stones; and the various artisans who put up the fittings; are all guided by geometrical truths. Railway making is regulated from beginning to end by mathematics; alike in the preparation of plans and sections; in staking out the line; in the measurement of cuttings and embankments; in the designing, estimating, and building bridges, culverts, viaducts, tunnels, stations. And similarly with the harbors, docks, piers, and various engineering and architectural works that fringe the coasts and overspread the face of the country; as well as the mines that run underneath it. Out of geometry too, as applied to astronomy, the art of navigation has grown; and so, by this science, has been made posssible that enormous foreign commerce which supports a large part of our population, and supplies us with many necessaries and most of our luxuries. And now-a-days even the farmer, for the correct laying out of his drains, has recourse to the level—that is to geometrical principles. When from those divisions of mathematics which deal with *space* and *number*, some small smattering of which is given in schools, we turn to that other division which deals with *force*, of which even a smattering is scarcely ever given, we meet with another large class of activities *which this science presides over*. On the application of rational mechanics depends the success of nearly all modern manufacture. The properties of the lever, the wheel and axle, &c., are involved in every machine—every machine is a solidified mechanical theorem; and to machinery in these times we owe nearly all production. Add to which that for the means of distribution over both land and sea, we are similarly indebted. And then let it be remembered that according as the principles of mechanics are well or ill used to these ends, comes success or failure—individual and national. The engineer who misapplies his formulæ for the strength of materials, builds a bridge that breaks down. The manufacturer whose apparatus is badly devised, cannot compete with another whose apparatus wastes less in friction and inertia. The ship-builder adhering to the old model, is outsailed by one who builds on the mechanically justified wave-line principle.

And as the ability of a nation to hold its own against other nations, depends on the skilled activity of its units, we see that on such knowledge may turn the national fate. Judge then, the worth of mathematics." Having determined beyond question what knowledge is of most worth—indeed actually essential to the progress of mankind—we have thereby determined what is of most value as a means of intellectual discipline; for, "it would be utterly contrary to the beautiful economy of *nature* if one kind of culture were needed for the gaining of information, and another for the development of intellect. Everywhere throughout creation we find faculties developed through the performance of those functions which it is their office to perform; not through the performance of artificial exercises devised to fit them for these functions.

I shall be charged, perhaps. in consequence of these views with believing in the *absolute* sufficiency of Mathematics as a means of education, and with arrogance in rejecting the testimony of certain eminent men against the utility of Mathematical discipline. But I neither hold the all-sufficiency of Mathematics nor possess credulity enough to render a passive belief in any utterance, simply because it is sanctioned by illustrious names. There is a great deal of contradiction among the authorities cited against the value of Mathematics in education; and those whose evidence is not nullified by mutual contradiction, are opposed by a greater number of more *credible*, because more *competent* witnesses. In fact the extravagance of the opposing testimony demonstrates its falsity. It is asserted that Mathematics are difficult only because they are too easy, that they determine thought to its feeblest development—that they actually dwarf the mental powers—that they contribute no advantage as a passport to Psychology or other sciences—that they lead to credulity and scepticism—and that a great genius cannot be a great mathematician. Descartes, Leibnitz, Newton, Evler, La Place, and a host of others—were they not men of genius? Or has the admiration of successive generations been only the tribute of a "blind credulity?" Then humanity has produced nothing great, and subjects for veneration must be sought among the forgotten—and soon to be forgotten—assailants of Mathematics. To show that I do not stand alone in my estimate of the value of Mathematics, it may be well to quote the evidence of a few of the witnesses who are *really competent* to give an opinion on the subject. *Kant*, after stating that the sure path of Metaphysical science has not yet been found, says: "It seems to me that the examples of Mathematics and Natural Philosophy are sufficiently remarkable to fix our attention on the essential circumstances which have proved so beneficial to them, and to induce us to imitate them so far as the analogy which, as rational sciences, they bear to Metaphysics may permit." *Cousin*, "the greatest philosopher of France," asserts the influence of Mathematics in the philosophy of Kant, and speaking of the

Mathematic and idealistic character of the Pythagorean philosophy, says : " For Mathematics are founded on abstraction, and there is an intimate alliance between Mathematics and idealism ; thence the Mathematical idealism that penetrates all parts of the Pythagorean system." And in reference to the Platonic philosophy, he observes : "Abstraction is, therefore, the process, the instrument, of all good philosophy ; this is also the process which characterizes the genius of Plato ; hence, all that is true and sublime in the philosophy of Plato ; hence his morality, his politics, and his *decided taste for Mathematics ;* you perceive, in fact, that the Mathematical habit of considering, in quantities and dimensions, only their essential properties, was a happy preparation to Platonic abstraction." This is clear evidence of the power of Mathematics to develop abstraction, and prepare the mind for the accurate investigation of its own phenomena. As to credulity and scepticism, we have the testimony of the celebrated *Dr. Barrow* ; "Mathematics deliver us from credulous simplicity, most strongly fortify us against the vanity of scepticism, effectually restrain us from rash presumption, and most easily incline us to due assent." *Lord Bacon* says :—" In the Mathematics I can report no deficiency, except it be that men do not sufficiently understand the excellent use of the pure Mathematics (he could have added *now* and the *still more excellent use of the applied Mathematics,*) in that they do remedy and cure many defects in the wit and intellectual faculties; for if the wit be too dull they sharpen it ; if too wandering they fix it ; if too inherent in the sense they abstract it." And *John Stuart Mill* says : " The value of Mathematical instruction as a preparation for those more difficult investigations, society, goverument, etc., consists in the applicability, not of its doctrines, but of its method ; the applications of Mathematics to the simpler branches of physics furnish the only school in which philosophers can effectually learn the most difficult and important portion of their art—the employment of the laws of simpler phenomena for explaining and predicting those of the more complex ; these grounds are quite sufficient for deeming Mathematical training an indispensable basis of real scientific education, and one of the most essential qualifications for the higher branches of philosophy."

I think, then, that notwithstanding the dogmatic utterances of certain Metaphysicians who were almost totally ignorant of Mathematics, and the careless admissions of a few Mathematical Metaphysicians who sacrificed the certainty and stability of Mathematics for the aberrations of Psychology, enough has been adduced to establish the proposition that Mathematics are entitled to a high position as an INSTRUMENT OF EDUCATION.

MORAL CULTURE AN ESSENTIAL FACTOR IN PUBLIC EDUCATION.

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Great moral principles are freely discussed everywhere—in our nurseries and primary schools, in our parlours and social gatherings, in our warehouses and workshops, as well as in our courts of law, colleges, and legislative assemblies. Subtle points of casuistry and questions of right and wrong, of duty, what ought and what ought not to be are constantly canvassed; and unfortunately very many persons dogmatise and pronounce upon them blindly without having received any systematic or scientific instruction. Surely this natural and universal disposition to deal with ethical subjects should not be ignored by the educator, or treated as a secondary and unimportant matter.

I propose, therefore, to urge certain reasons in this paper why a knowledge of the fundamental facts and principles of ethical science, and of their practical application in every-day life, should be made an essential factor in public education. I do not say the sum, or chief part of education, but only an essential factor in it. This appears to me to be demanded:

I. In order to secure a fair and symmetrical development of man's entire nature, and to avoid a one-sided and pernicious education.

To make this fully apparent, it is necessary to indicate in outline what should be aimed at in education. I do not mean by this, however, a discussion of details as to methods of instruction, branches of study, the age at which certain of these should be taken up, the extent to which they should be prosecuted in our Public or High Schools, and the measure of information to be imparted to pupils at various stages regarding the multitude of subjects which now claim attention. It is sufficient for the purpose of my argument to point out generally the sort of training which is required, or the directions our educational efforts should take in order to secure the well-balanced and harmonious growth of man. I take it that no one can doubt that this should be the practical issue of our work. The common sense of mankind demands this. The broad test which it applies to any system, whatever amount of machinery and show and red-tape it may possess, is, what sort of men and women does it produce? And, in the long run, it treats with well-merited contempt and scorn all fine theories which fail in this respect. In order to secure the highest style of man, therefore,—the man who is not weak, or capricious, or unreliable, who is not an incubus or a firebrand in society, but is fit to take his place and discharge his duties in relation to God and his fellow-creatures, it is self evident that we cannot neglect the training of any part of his nature—we require to draw out in a legitimate manner all the grand possibilities of that nature. Hence we must provide for the culture of the senses, the culture of the physical organs as mechanical instruments of the mind, the culture of the mental powers, and the culture of the moral nature—the last accompanying and interpenetrating all that is done in the other directions. Let us look at these separately.

(*a*) *The culture of the senses.*—It is only recently that attention has been given to this as specially vital to education. A quarter of a century ago physiologists and metaphysicians generally treated with scorn what they denominated the ravings of phrenology. In their opinion it was the sheerest nonsense to attempt to explain mental phenomena and to guide the work of education by reference to the brain. A distinguished man who now holds a position of high trust and responsibility in this city was then my fellow-student, and used to tell me with great glee and triumph that phrenologists were ignorant fools because they placed bumps, upon the brain as organs of mentality where there are actually depressions and empty cavities in the skull. My metaphysical friends of that period, whether as books or as living oracles, were not much more respectful to this line of investigation.

But the educational world moves. Now, you can hardly take up any school manual which is not decorated with pictures of the brain ; and the learned authors, from Dr. Carpenter downwards, tell you all about the weight, and shape, and size ; and density of the brain—its convolutions, ganglionic centres, and the rest. They trace it from its first stages of development through infancy, childhood, manhood and old age—they even venture, with surprising minuteness of detail, to connect with its different stages of growth the appropriate parts of the great programme of modern studies, and to indicate how it is to be treated, fed and disciplined, from its early pulpy plastic state until it becomes the shrivelled occupant of a hard and barren old skull. Well, there is truth in all this, although we may, in the meantime, take some of it *cum grano salis*—as not altogether infallible gospel. At any rate I have no time or need to argue with these enthusiasts. For my present purpose a general statement made by Tyndall is sufficient, as bringing out the fact that each of the senses has its own specific function which cannot be transferred to another, and should therefore receive appropriate culture. He says : " Different nerves are appropriated to the transmission of different kinds of molecular motion. The nerves of taste, for example, are not competent to transmit sonorous vibrations. For this latter a special nerve is necessary, which passes from the brain into one of the cavities of the ear, and there spreads out into a multitude of filaments. It is the motion imparted to this, the *auditory nerve*, which in the brain is translated into sound."

This statement contains enough—perhaps a little too much. It seems to accord one function to the brain which certainly does not belong to it. If it ascribes the mental act of translation to the brain it is a mistake. It is not the *brain* which translates the motion into sound, but the *mind*, to which the brain and the nerves are ancillary. The senses give no knowledge any more than the living tissues of a plant possess that function. They are merely servants, reporters, to the mind, without which they are useless and destitute of all intelligence. They are related at the one end to the outer world, and at the other to the mind; and it makes all the difference imaginable what sort of mind is placed at the inner end of these nerves, and what sort of treatment or culture they have received. The brain of an ox or an ass may, and does, translate motion into sound in Tyndall's sense. The ear of the rabbit or the stag is far quicker than the ear of man; but it needs the *mind* of a *man* and of an accomplished musician related to the *auditory nerve* to translate the vibrations of a grand orchestra into all the thrilling effects of melody and harmony. Hence the necessity of training, of educating, this sense. And what is true of this is true of all the rest. It may seem strange to some—even after all that has been written in this direction—but it is nevertheless true, that boys and girls, men and women, literally require to be taught to see, and hear, and feel, and taste, and smell correctly. According to the Kindergarten system of education, founded by Frederick Froebel, this sort of culture of the senses is made to precede all other elementary training so as to prepare the child for higher forms of instruction. This is so far well. But I see no valid reason for limiting such culture to childhood. On the contrary, it should be extended by appropriate methods over the student's entire career, and beyond the time when he takes leave of his *alma mater*—to the end of his life. Many weighty reasons might be urged in favor of this course. Suffice it to say that the manipulations of the natural sciences as well as the refinements of literature and art demand this delicate and accurate culture of the senses. How otherwise, for example, can the beneficent marvels and triumphs of surgery be accomplished? It is only the man whose eye, and hand, and sense of touch have been most carefully and minutely educated for years that can be entrusted with operations involving the life or the life-long happiness or misery of his fellow-creatures. And it seems superfluous to say that such training is fundamental to the fine arts,—that Architecture, Sculpture, Painting, Music and Poetry are impossible upon any other condition. It is vain to dream of genius taking its place. Men of the highest talent and genius cannot dispense with it. Their success is dependent upon it. Every observant student of Tennyson, for example, must have noticed to what an exquisite degree he has cultivated his ear. Hence the music of his lines from first to last—those that mean little and those that mean much—is perfect. This ear-culture has not made him a poet. *Poeta nascitur, non fit;* but his case shows with superlative force that the training of the senses, the teaching of the ear to hear and the eye to see, is fundamental—stands at the very threshold of the highest education; and that, as one of Tennyson's admirers has well remarked, "the intensest sense of natural beauty—whether of color, or form, or sound, or imagery, or thought—needs culture, and the poet who neglects thus to train his ear is as unfair to his genius as a painter would be who did not study drawing and the harmony of colors."

(*b*) *The culture of the physical organs as mechanical instruments of the mind*—only a few words on this point. It is now well understood that in order to secure the health and growth and beauty of the human frame—and these are grand ends to aim at—we must supply the right sort and right measure of food and rest and exercise. It is not possible here to prescribe the form or manner in which this is to be done, or to lay out the work to be accomplished in this respect in our homes and school-rooms and shops. I merely affirm in a general way that just as each one of the senses requires separate culture, so the hand, the foot, and every organ of the body should be trained for its proper functions, and that physical exercises and activities in the school-room, the gymnasium, the play-ground, and workshop should be made to contribute to the attainment of firmness and strength and skill in the use of our organs, and this skill should be treasured up and rendered permanent as well as available at any moment in the form of settled mechanical habits.

Our system of education recognizes this doctrine and provides some facilities for carrying it out. Hence we have gymnastic exercises, calisthenics, and object lessons to a limited extent—but these are not enough. They afford but partial scope for the development of the senses and bodily organs. Our appliances and arrangements for physical training, generally speaking, are by no means complete. Its necessity and utility are very inadequately appreciated by many parents and even directors of schools. It is therefore neglected or treated with contempt. Hence incompetency in many instances for the duties of life, feebleness and deformity of the body, discomfort, disease, and death are frequently the issues. We need a vast extension and practical improvement of the means and methods employed for the strengthening of the physique of our boys and girls, and men and women; and the morality of the land, let me say in passing, would be greatly improved by this means, for certain secret vices are checked and banished by the cultivation of manly physical vigour. But I am not despondent or despairing in this connection. I look with hope and gladness to the spirit of the age, which demands that theoretical knowledge, the speculations and abstractions of philosophers are no longer to reign supreme in education. The tangible, the visible, the products of men's hands are justly forcing themselves upon attention and gaining ready acceptance in our practical age ; and we are destined to see far more of this in future. The training of the hand, of the whole frame, for the toils which it is to undergo in life will yet become much more closely related than at this moment to the work of the school-room. Children will be trained, not for genteel indolence, but for healthy and remunerative activity. The raw materials of the industrial arts may yet be put into the hands of pupils now deemed too delicate or refined to touch them that they may learn their nature and history and be practically trained in the methods of preparing them for man's use. We are doing a little, and are destined to do far more in this direction, by our agricultural colleges, schools of applied science, schools of cookery and technology with their workshops and other appliances attached to them. And when we have attained to the right standard of this sort of physical training—this culture which makes all the organs of the body skilful instruments in working out the grand purposes of the intellect and the heart, then the material resources of our country will speedily become avaliable as inexhaustible storehouses of national wealth and prosperity—we shall be moving in the direction of a practical solution of the great ethical problems of modern times in relation to labour and capital, strikes and trades unions, and the invasion of the Chinaman—we shall purify our homes and the moral atmosphere of the land by banishing physical incapacity, indolence, and mock-gentility, and all the immoral amusements and other means now employed by multitudes to displace honest toil and kill time, and we shall convince such that downright hard work is at once respectable, delightful, and useful.

So much for the grand factor of physical culture and the manner in which ethical principles fit into it. Now for another point.

(c) *The culture of the mental powers.* In this connection I have time only to indicate two vital points without extended elaboration. *First*—I wish to protest, however briefly, against the growing feeling that having trained our *sensor* and *motor* organs—our physical nature—we have done all that is needed. On the contrary I allege that we are not wholly animal in origin and constitution—that we are not all body—that the phenomena with which education is concerned are largely and chiefly spiritual. The evidence of this is incontrovertible. There are fundamental facts of our nature which cannot be accounted for on the supposition that we are all body and nothing more, and hence this hypothesis is untenable.

We cannot, for example, account for the *indestructible feeling of unity* which is inseparable from the consciousness of personality. Such unity in no sense belongs to matter for we know that by the application of sufficient force, in the form of heat, for instance, the particles of matter can be rent asunder, or different bodies may be fused into one. But such disintegration or fusion of the soul—the ego—is unthinkable. Consciousness rebels against it.

We cannot account for *personal identity* from the physical side of our nature or body-wise. Thus, we know that we are related daily to an infinite variety of subjective phenomena. We hope, we fear, we love, we hate, we enter into elaborate mathematical calculations and far-reaching processes of discursive thought. We change our relations to the whole universe every moment. Our views, opinions, and convictions change—our bodies change from infancy to old age, but *we* are the same—the conscious ego is identical from first to last. This is not a property of our animal nature, but of the spirit that is in man.

We cannot account for *will force* on the materialistic theory. This is thoroughly unlike anything found within the whole domain of *physical force*. Physical forces act with unvarying and unchangeable regularity. They move in ruts out of which they cannot lift themselves. But here is a force of infinite versatility—capable of acting in all directions—capable of opposing, directing, and overmastering physical forces—enough, were there nothing more revealed by consciousness, to save us from the folly of denying the existence of spirit.

And surely it is self-evident that the *properties of spirit and matter are not identical*. Thought, feeling, volition, moral sensibilities —these are properties of mind; but they cannot be aggregated into size, and weight, and colour—properties of matter. Our consciousness—the veracity of which we dare not question—in every indivisible act separates self from not-self. So sings the Poet Laureate:

"The baby, new to earth and sky,
What time his tender palm is pressed
Against the circle of his breast,
Has never thought that this is I.

But as he grows he gathers much,
And learns the use of I and me,
And finds I am not what I see,
And other than the things I touch.

So rounds he to a separate mind,
From whence clear memory may begin,
And thro' the frame that holds him in
His isolation grows defined."

We thus make sure of the two factors of our being—self and not-self; and we do so in the interests of moral science, whose very basis is cut away if we fail to distinguish between body and mind.

Second—I wish in connection with the culture of our mental faculties to emphasize the need of preserving the proper balance of harmony among them—their regular or evenly development. This is not always attended to. There is an unreasonable pressure often laid upon the memory, for example—it is loaded and urged on like a beast of burden to the neglect and injury of other faculties; or the imagination and feelings are so stimulated as to overpower the conscience and the will. In either case injury is done. The vice of cramming is encouraged; and this is an evil which deserves the strongest reprobation, because it perverts and distorts the child's powers, inflates him with a foolish conceit should he prove successful or disgusts him with study in case of failure and often saps the very foundations of health, and, what is worse, of morals, by the practical dishonesty which it fosters. Experienced teachers understand the evils at which I have hinted. We all know how the body suffers—what weakness and unutterable agonies it passes through by having several sorts of indigestible food crammed into the stomach; and this is only a feeble type, a shadow, of the irreparable mischief done to the mind by persistent cramming. It is aside from my purpose to indicate the forms in which this vice is active, and the extent to which it frustrates the work of schools and college; but I may say in passing that as things are, pretty strong temptations present themselves to yield to its power. The haste to be rich, and hence the feverish wish of parents and senior pupils to abbreviate the period of school attendance and to enter business—the haste to rush and crowd into the learned professions—our pompous courses of study with thousands of pages in several languages to be read, a multitude of subjects to be mastered and academic degrees and honours to be gained all in five or six years—the fact that public sentiment offers a sort of premium in the form of special laudations to institutions which turn out in the shortest time the greatest amount of work thus done to order—all these things are so many potent temptations to indulge in cramming, to set aside the true philosophy of education and to ignore the symmetrical development of the senses the physical frame and the mental powers upon which I insist.

(*d*) *The culture of the moral nature.* A few sentences on this point will complete my brief outline of what is to be aimed at by the educator. It may be granted without discussion that there is an immutable and eternal distinction between right and wrong; that the basis or standard of right is to be found, not in the feeling of self-love, the sense of utility, the impulse of benevolence, or in any of the changing phenomena of the human mind but only in the divine nature—and that nature revealed in the record of creation and the written word.

It may be further conceded that there is an innate faculty or power in man which recognizes the distinction between right and wrong and discerns the moral quality of actions. This is the precise function of conscience. As a recent writer expresses it: "Conscience is the innate moral sensorium of the personality for differentiating right and wrong, good and evil." Furthermore, all creatures endowed with the faculty of moral discernment are, by the very condition of their being, under law to the Creator as their Moral Governor; it is inconceivable that creatures should be brought into existence under any other condition than that of loving subjection to the Creator; and they are also related to one another by an infinite variety of moral obligations in the great fabric of society and capable of forming an indefinite number of moral habits both vicious and virtuous.

Now then, without extending these statements, or anticipating what is to be advanced in another connection, enough has been said to make it apparent that a fair treatment of man's nature, an honest endeavour to develop all his powers, demands no small amount of moral culture. Educate man up to the proper point, make him what he should be, give all the powers and functions of his nature fair play, and his conscience and moral sentiments cannot be overlooked. This is the precise point of my argument; and I believe that sound philosophy and history may be confidently appealed to in support of this position. I know that history is not an infallible guide in the definition of education because civilized races are constantly outgrowing the highest attainments of the past, and therefore it is unwise to bind us simply to what has been. What a few centuries ago was a crime to predict as scientifically probable or possible it is now insanity to deny. And so the curriculum of study in coming centuries will discard, I have no doubt, a good deal upon which we expend our energies and include not a little of which we have scarcely dreamed. Still, making these allowances, history teaches, with an emphasis and a force which we cannot disregard this lesson, viz., the absolute necessity for a symmetrical and harmonious development of man's nature such as we have indicated under the four points just mentioned, and at the same time the danger and folly of a narrow and one-sided education.

Almost innumerable examples of such folly might be cited from the historic past. Take only two or three well-known instances. And these instances, I ask you to observe, bring out the fact that most pernicious one-sidedness has occurred by one thought, and then another,—one ruling principle, and then another,—one view of man's nature, relations, and destiny, and then another being made unduly prominent or supreme, to the exclusion of all other considerations.

Thus, in ancient Egypt all culture was carefully and strongly stamped with a religious character almost to the exclusion of everything else. Educational efforts were limited and controlled by the mythological ceremonies and absurdities of a swarming priesthood.

The Chinese have moved in a single groove for centuries. Intellectual activity has been made to flow almost entirely in one narrow channel. They have been ruled and trained by the single principle of veneration for ancestry. Children have been taught little else than unquestioning submission to parents, and citizens servile subjection to the head of the Empire. This has been the alpha and omega of their education.

In India the tyrannical law of caste has from the very earliest antiquity rendered education limited, partial, one-sided. Without multiplying examples from the distant past, let me ask for what are these nations distinguished? Or what is the outcome of their education? Do they now, after centuries and centuries of such training, lead the van of invention and discovery, and stand foremost as founding and fostering institutions for the amelioration of man's misery and the elevation of his entire nature? Do we look up to them as having achieved true freedom, and as enduring examples of social, political, commercial and scientific progress? Have they risen to the same lofty plane of thought and purity as the Anglo-Saxon nations with their broad and symmetrical culture? Assuredly not. They are appalling monuments of intellectual and moral stagnation. They could not escape being so, because the unavoidable limitations of a partial and one-sided training veto and crush out of existence all true progress. And it matters not that the ruling thought in such training may be counted harmless, or even good and devout; if allowed to become unduly dominant, to usurp the place of other essential modes of thought, to close the door of truth on any side, to suspend or paralyze any of the functions of man's nature, it is dangerous and injurious. We have a striking and incontrovertible example of this in our own day and in our own country. Here it is, expressed in the words of the distinguished Joseph Cook. In a recent lecture on Canada he says: "On the fertile banks of the lower St. Lawrence we have a French population living in a state of prolonged childhood under Romanism—ignorant, industrious, social, but not progressive. Lower Canada is a part of France unreformed by the revolution of 1792. The Romish Church of Louis XIV. yet collects its tithes on the eastern St. Lawrence." And Joseph Cook significantly adds as explaining this state of things—this intellectual stagnation for centuries—"the Jesuit is active there." Yes, and his system of education is one-sided, unsymmetrical, and unnatural in the last degree, and hence its outcome.

But the history of this same French people in their own country furnishes a far more startling and unique example of the ruin that may be brought about by a one-sided education whose ruling principle or dominant aim is thoroughly bad—in which, not an ignorant or pious superstition, not a good thought misplaced, but a false and immoral principle is made supreme. When the proper equilibrium, the symmetrical unity of man's constitution, and the co-ordination of his faculties, of his beliefs and opinions, are overthrown by such a dominant principle the results are most disastrous.

You recollect what happened in France when the sensualistic philosophy, with its denial of the existence of spirit and perversion of all pure morality, was fully developed from germs furnished by two eminent Englishmen—Hobbes and Locke. The dominant materialist principle of the system was readily favored by Voltaire, who, though no philosopher, was prophetic enough in spirit to see how it would serve his own purposes, and hence he used his satirical pen to promote its success as against the antagonistic philosophy of DesCartes and Leibnitz. Condillac, with unlimited dogmatism and exquisite beauty of style, lent his powerful support to the same principle. Helvetius developed it with a will, and, with an outspokenness which far surpassed that of his predecessors, promulgated views the grossness of which it is almost impossible to exaggerate. His literary executor, St. Lambert, tried to cover the hideousness of his doctrines with the garb of decency, but this only intensified the evil. The sensualistic principle prevailed. The doctrine of no spirit, and hence no God, no hereafter, and man nothing more than a bundle of organised sensibilities, compelled by the fatality of his constitution to shun pain and seek pleasure in every form, was fully accepted. With man's moral nature thus thoroughly perverted and depraved by a persistent course of one-sided and pernicious training, it was easy, under the guidance of St. Lambert, and kindred spirits, to bring in all the horrors of the reign of terror, when by public enactment God was proclaimed a non-entity, and hence Divine worship and the Sabbath were abolished —the goddess of reason was openly enthroned and adored—the marriage law was annulled and multitudes of bastards were born annually, and the prisons were thronged by innocent men and women who fell victims to the remorseless periodical slaughters of the guillotine ; all this, and much more, as the undeniable issue of a one-sided education which systematically and persistently ignored the spiritual and moral functions and relations of man.

It seems to me, therefore, that the analysis of man's constitution as indicating the training it requires, and the testimony of history as recording the experience of the past, make it abundantly evident that moral culture should be an essential and prominent factor in public education. I argue this :

II. From the fact that it is clear, even from the most cursory view, that the science of ethics embraces the discussion of great and vital questions which affect the weal of society and the progress of man.

You may convince yourselves of this by the study of almost any of the ethical systems of antiquity or of modern times. I do not mean, of course, that you may accept these indiscriminately as equally safe and true, but only that any one of them, however faulty, may serve by the very statement of the subjects it touches to show the truth of the proposition just enunciated. Here, for example, is the wide range of topics embraced under the title of "Christian Ethics," in a work just issued at Heidelberg by the well-known Dr. Lange. I use a condensed *vidimus* of it prepared by Professor Lacroix. The Dr. begins with a critical introduction in which he gives the "History of Ethics"—both Protestant and Catholic—from the revival of learning to the present time. Then follows: "*Part First.*—Principles: (1) Ontological Principles: (*a*) Of Personality; (*b*) Of Spirit; (*c*) Of Nature; (2) Soteriological Principles: (3) Organic Principles. *Part Second.*—Duties: (1) Duty in general; (2) The moral law; (3) The moral purpose; (4) The moral action. *Part Third.*—The virtues: (1) Vice; (2) Virtue in process of genesis; (3) Christian virtue realized. *Part Fourth.*—Goods: (1) The moral good; (2) Evil; (3) The hierarchy of goods; (4) The goods in their historic development."

Now, whatever you may think of this distribution of the subjects included in Christian ethics, whether you approve or condemn it, you cannot deny that it furnishes a vast array of questions which cannot be ignored or even lightly treated in our national system of education, because they lie at the very foundations of society; and our citizens, if left ignorant of them, cannot rightly fill their places in the great social compact. Society, let us remember, is not founded upon mathematics—pure or applied—or upon geology, or chemistry, or astronomy, or upon any of the sciences which bulk so largely in our programme of modern learning, and which I have no wish to depreciate but upon grand moral principles. The framework of society is neither set up nor held together by brute force, nor solely by the products of the intellect. Steam and electricity, the outcome of all the sciences, intellectual achievements of every sort, have their own rightful place, but let us understand distinctly that we are drawn together and aggregated as families, cities, communities, nations, through our moral natures, and that we can become pure and great only by the proper recognition of our relations to God and to one another.

I know that these views may be felt to involve the acceptance of the Bible by the nation. Be it so. That is precisely my intention; and I am not afraid or ashamed to acknowledge before the wisest philosophers on earth that I decline to accept as a fountain of instruction and the ultimatum in morals, pagan guesses and rubbish, while I have access to the Word of the Maker of our bodies and the Father of our spirits. It cannot be denied that the Bible contains the highest philosophy and the purest morals—that the life and lessons of Jesus are the clearest exhibition, the very incarnation, of the morality we need in our schools and in the whole community. And I have yet to learn that our civil and educational institutions can exist without the Bible. Our civil law, our criminal law, our Sabbath law, our marriage law—the great bulwark of domestic and social purity and happiness—our laws against blasphemy and perjury, are all drawn from the Bible ; and we use an act of religious worship—would that it were devoutly used—in the form of an oath, as the very bond of society and the means of ascertaining truth and enacting justice in all our courts of law. Why should it be thought surprising then by any one, and why should any intelligent citizen be found to hesitate about the fact that true moral culture—the culture that has contributed so largely to make our empire what it is—demands the free use of the Bible ? Has it not already woven itself into every line of our purest literature, and every principle of our science, and every fibre of our national life and history ? So that it is only by being untrue to ourselves, to our history, and to our God that we can deny it this place in future. But having said this much, I refuse to be branded on this account as a narrow bigot and the enemy of science and progress. I am the humble friend and advocate of all true sciences—anxious to see the door of truth thrown wide open on every side—willing for the freest, fullest, and most profound investigation into God's works without the slightest shadow of fear of his being thereby convicted of error, ignorance, or fraud—willing, as one has well expressed it, " to have all men doubt the false, if the doubt be pursued to the overthrow of the false—and to have them even doubt the true that has come to them through tradition or bad education, if the doubt be pursued to the establishment of the true." But I am unwilling to accept a pagan, inaccurate, unreliable guide in morals when I have a perfect one at hand—unwilling to have the nation in any measure let go its firm hold upon the living Word, or renounce its public confidence in the great bulwark of its life and liberty and glory. In the words of an English writer: "I look upon the present age as rich in the elements of a glorious future ; but every one of these elements may subserve an overwhelming catastrophe. The great need of our age is steerage power. The traditional respect for superiors was a superstition ; it is right that it should have passed away. But in its place we must have a true respect for real superiors, or the nation must come to shipwreck. The fading faith in religion was, in a large measure, a superstitious belief in a corrupt Christianity ; it is right that it should have passed away. But in its place we must have a real belief in a pure Christianity, or every man in the nation must come to shipwreck. Faith in men, love to men, respect for men—faith in God, love to God, reverence for God—who will supply these to the world ? Let these abound, and then

"Make knowledge circle with the winds;
But let her herald, Reverence, fly
Before her to whatever sky
Bear seed of men and growth of minds."

Let us now take another step in this argument. I press for a proper recognition of ethical training in our public education—

III. Because this is specially needed to meet the present wants of our country. What are these? It cannot be denied that we have abundant material resources. Our country is broad and rich enough in this respect. We have also a goodly modicum of talent—of mental outfit—whatever our cousins across the line or our grandfathers across the Atlantic may think about us. The ranks of the learned professions are well filled, and we are never lacking in young recruits aspiring for distinction and power. In theology, law and medicine we make a respectable appearance, and the different sciences find among us earnest votaries and a few names of world-wide reputation. And if we do not stand in the first rank in literature, we have at least shown some skill and enterprise in it, and even the fine arts begin to show signs of growth and progress on our soil. Our schools, especially in this great Province of Ontario, are well organized and equipped on the whole, and carried on by a band of earnest and enthusiastic workers. We are slowly rising to fill no unimportant place in the great family of civilized nations; and what we need now for still greater national strength and progress are certain things in the moral category. Shall I say a higher sense of honour among all classes, including our public men, and a supreme regard for truthfulness? It is easily seen that shortcomings in these respects must touch and deteriorate our national life at every point—they will influence our domestic relations and public transactions—affect our buying and selling, the entire trade and traffic of the country—they must appear in the witness box tainting our judicial processes and perverting the decisions of our courts—they will pervade our daily literature and render almost worthless, and even pernicious in many instances, the utterances of the press. And is it not a lamentable fact, as recently declared by a leading statesman of Ontario, that in order to get an approximately correct view of the doings and utterances of any public man you must read the accounts given by the papers which favour him and the papers which oppose him? And even then you may fail to reach the truth.

Now, it is in the power of our schools and institutions of learning, as well as of our teachers of all sorts, to brand with deserved infamy this detestable vice of lying, and to stamp it out of fashion, if not out of existence, by calling it by its right name and making it bear its proper burden of dishonour and disgrace, and by holding up constantly before our youth a pure standard of truthfulness and integrity. This is what is needed to bring back business to a safe and healthy state, and the only sort of National Policy that can ensure permanent prosperity. We hear much of the *hard times* through which we are passing, but we are slow to take in the thought that *hard dealings* must bring on hard times in the most productive and highly favoured countries under heaven. If men will have double prices for their goods, and oblige their clerks to lie in selling them—if they will force on trade far beyond the wants of the country by unlawful competition and an unhealthy system of commercial travellers—if they will buy and sell on credit with no rational prospects of meeting their obligations—if young men will rush into business without capital and float it upon accommodation paper, and set up domestic establishments the very first year surpassing, or at least equalling in grandeur and extravagance those of persons who have made their fortunes—if wealthy men, eager to become more so, will found superfluous banks and then press hard upon one another while encouraging reckless commercial adventurers—if men will make up their minds to overreach, and cheat and lie in business, there is no difficulty in seeing how hard times must inevitably overtake them. And the remedy is to be sought in persistent, universal, thorough moral culture. The vices hinted at are not to be cured in a few months or years. They grow slowly and they die hard. Great tall rank plants of iniquity do not grow up like Jonah's gourd in a single night. Giant swindlers undergo a long and hard process of education in secret and public which is not easily undone; and when a multitude of them infest a country it may require a generation or even more to drive them out, and there must be many a crash and painful exposure in business and in public life before they disappear. It is manifest that the true way of dealing with these evils, in so far as they affect us, is to teach and preach and speak and work against them. They will not disappear by being left alone. Silence respecting them is criminal. The feeble compromising policy which finds it convenient and easy to do nothing, or to wink at moral delinquency, is both unsafe and unmanly. And I am not sure that those specially entrusted on one day out of seven with the work of public instruction in religion and morals are in this respect entirely blameless. Froude, the historian, justly complains that he has not been well treated in this respect during a long period of devout church-going. His words are: "Many a hundred sermons have I heard in England; many a dissertation on the mysteries of faith, on the Divine mission of the clergy, on apostolic succession, on bishops and justification, and the theory of good works and verbal inspiration, and the efficacy of the sacraments; but never, during these thirty wonderful years, never one, that I can recollect, on common honesty—on those primitive commandments, "Thou shalt not lie," and "Thou shalt not steal."

Probably his experience is not unique. It cannot be so if we may judge from the number of rogues still at large in spite of the business carried on by our police and our prisons. The pulpit is doubtless to blame; but we need far more than sermons on these questions. We need to go down to the roots of the evil, and to permeate our whole educational system with ethical training. We need ten thousand daily lessons in our school-rooms and in our homes on the elements of morals, on the principles of truth, and right, and law, and purity, and frugality, and self-control, and general government; and we need to have these lessons not only formulated and printed in a manual authorized by the Minister of Education, but also taught by men and women who have their hearts in the work, and whose lives are illustrations of what they teach—living epistles known and read of all men. This is what is needed in order to preserve untarnished the national honor and glory which we have received as a rich heritage from the past, and in order to make strong and lasting the foundations of the mighty empire of teeming millions destined to extend northward from our grand St. Lawrence. And as we try to consolidate more and more our wide spread provinces, and to fuse into strong and loving unity our heterogeneous populations, and to bind all in undying loyalty to the best of sovereigns, as we plant our institutions over the enormous territories of the North-west, and along the valley of the Saskatchewan, and are not ashamed to call Canada our country and our home, let us see to it that reverence for truth and right reign supreme; then

> "Self-reverence, self-knowledge, self-control,
> These three alone lead life to sovereign power.
> Yet not for power (power of herself
> Would come uncalled for), but to live by law,
> Acting the law we live by without fear;
> And because right is right, to follow right
> Were wisdom in scorn of consequences."

THE HIGHER EDUCATION OF WOMEN.

BY D. C. M'HENRY, M.A., PRINCIPAL OF THE COBOURG COLLEGIATE INST.

A recent writer remarks that "the air is thick with schemes for the education of women." If this be true, no apology is needed for the action of our Executive in selecting it as a topic for the consideration of this Association.

Doubtless there are some present who regard the discussion of such a subject as unsuited to the practical purposes of our convention. I would share in that opinion if our discussion must necessarily partake of the aimless, desultory character which this and kindred subjects too often receive. Believing, however, that the higher education of women is intimately associated with the best interests of the teaching profession, and susceptible of a practical consideration, I shall try to treat the subject as fundamentally important, accepting in part the principle ennunciated by John Stuart Mill, "that the standard of the education of women in any country will be the measure of the education of the men of that country."

If we would check fanciful innovations and encourage reasonable changes in our endeavor to improve the educational condition of women, we must seek a rational basis of action. On fixing on such a starting point, we shall find that our views of the final cause of the existence of women will largely determine our ideas as to her legitimate sphere of action, and the corresponding educational qualifications to which she is entitled.

I. WOMAN: HER NATURAL SPHERE AND NATURAL ABILITIES.

The minor theories which are entertained on this point may be conveniently reduced to two: (1) that woman was created for the service she can render to man; (2) that she was created to some end proper to herself. The former, as explaining the purport of woman's life, may be subdivided into the physical theory, the domestic theory, and the social theory.

The Physical Theory, common to all savages, whether savage tribes of heathendom or the savage individual of Christendom, may be dismissed with the remark that to consider the moral and intellectual nature of woman as a sort of superfluity, and to treat her as a mere animal link in the chain of life, is a monstrous doctrine, a gross impiety against our human nature, and suited only to the ages of barbarism.

The Domestic Theory is almost universally accepted by the civilized world, and is notably favored in England, where an ideal home is a synonym for all that is good and desirable. It finds expression in the remark, "Woman's sphere is the home." Let her but pass the limit of domestic functions and relations, and she is regarded as "out of her sphere," in a fair way to become unwomanly and masculine.

Very beautiful, very proper, perhaps, but like many beautiful things and theories, often unreal, impracticable and misleading. That the home is woman's proper kingdom; that all pertaining to its order, comfort and grace naturally falls to her charge, and cannot be transferred to man; that woman's life, without such a domestic side, is incomplete—all this is very true. We all admit that while a man may buy or build for himself *a house*, it takes a woman, a true woman, to make it *a home*; that the more womanly she becomes the more will her true and charming personality appear in that home; transformed from what man, alone, could make it—a place of eating and sleeping—into the abode and embodiment of all that constitutes a happy home.

We all know the innate desire of woman for home-making, as natural as nest-building in the bird, nor would we attempt to eliminate the one personal element essential to its homelikeness, around which cluster the aggregate of home comforts, great or small—the one who has

"An ear that waits to catch
A hand upon the latch,
A step that hastens its sweet rest to win;
A world of care without,
A world of strife shut out,
A world of love shut in."

Unhappily, however, in this stern, practical world of ours, amid the vicissitudes of a busy age, the exercise of this instinct in woman is frequently interfered with.

We have traced to its main source the "sunshine of domestic life." Let us proceed to a close analysis of this sunshine. Does it consist in the presence of one who by some means or other becomes "lady of the house," even though the embodiment of a dozen servants—housemaid, housekeeper and cook—all rolled into one such mistress? Such a wife is only a higher style of domestic. Let us not forget that she who presides in our model home must possess habits of reason as well as domestic order; a refined love of the beautiful, and a dignified kind of loving care, ever present but never intrusive; always calm, bright and gladsome. What is the source, the secret of these higher essential qualities? Are they produced by the domestic theory, *per se?* It furnishes us a good housekeeper; but this does not meet the case. The idea that in the humbler ranks of society the cooking of dinners and the mending of clothes, and in the wealthier classes the art of ordering a dinner and the studying of fashions, the receiving of company and "shining" in society, the usual round of so-called accomplishments—that these constitute the true sphere of woman or indicate superior excellence is an opinion stupidly false but painfully prevalent. This theory cannot guarantee those qualities of mind and heart that produce our "domestic sunshine."

The Social Theory exhibits woman in her social capacity; presents to us gifted women who know how to make home a centre of intellectual and kindly intercourse—the *artiste*, the woman of letters, the philanthropist. This many-sided theory at once suggests illustrious representative examples. Mrs. Somerville and Rosa Bonheur have shown what woman can achieve in science and art: George Eliot, conspicuous among novelists; Mrs. Browning and others, in the domain of poetry; Mrs. Coutts and Florence Nightingale, in benevolence and humanity; our Pattis, our Nillssons, and our Princess Louise—all illustrate the possibilities of talent and culture in women.

The most elaborate, and I think the most extravagant, theory is that of Comte. Discarding the physical and domestic ideas, he carries to excess the social; places woman where she is excluded from art, science, and even the work of education, and makes her the object of a humiliating worship.

Neither of these theories, in itself, offers a sphere generally applicable to woman, nor a suitable field for the development and exercise of her natural abilities. Could we select the real, the good that is in them, we might satisfy the demands of our matter-of-fact age by a union in woman of their excellencies.

Supposing every woman inherently to possess these qualities, and that to every such woman our ideal home were really assignable, we might, perhaps, define *the sphere of woman*, and confine our attention to the means necessary for the education of these latent powers.

In our present social condition, however, we must face the fact that there are many women naturally gifted who have to depend on their own exertions; that while man in self-complacency asks "what can she do for *me?*" from many a woman we hear the honest, thoughtful enquiry, "what can I do for *myself?*"

Let those who lightly treat such questions as the higher education of women, the efforts of women to enter industrial pursuits and professional life, bear in mind that these questions are no mere contention for woman's rights in the abstract. Voices are heard which we cannot disregard; and if the hour of earnest thought is the precursor of the hour of action, the hour of action is near at hand. This brings us to consider briefly

II. WOMAN: HER ACTUAL SPHERE, AND HER PRACTICAL DISABILITIES.

Or, which may be preferable, her actual condition in the many spheres of daily life, and the hindrances to her highest success in special spheres of action.

For obvious reasons we do not attempt to confine man within any very limited sphere, and we shall find the task practically as difficult in regard to woman. To construct any special theory and rigorously adhere to it, to form a mould of certain shape and arbitrarily try to fit woman into it, would be assuming that she is formed of some plastic material that can be manipulated at will to suit our cherished theory; that we have only to make round holes, and woman will grow round to fill them, or square, and they will become square; while man, less pliable, formed of more stubborn material, cannot thus be forced into any position our fancy may suggest.

An appeal to facts will prove that any such assumption is unwarrantable. We find, for example, that the majority of women are provided for by parents or husbands, passing their lifetime in domestic routine, with no special concern as to the necessity for independent effort.

It teaches us also that there is a very respectable minority who, otherwise unprovided for, are engaged in some honest calling to gain a livelihood or secure a competency.

It shows, moreover, a third class who, not of necessity but from choice, from their love of knowledge, an ambition, it may be, to gain a distinguished position in literature or science, or in some professional career, are claiming the right of participating in all the advantages of a higher education.

These three classes are distinct, and cover the entire ground, yet there are certain questions on which they unite in common. For example, women display a long list of property disabilities to be relieved, social wrongs to be vindicated, and political grievances to be redressed, involving the solution of some of the deepest problems in social and political science—an undertaking quite foreign to the purpose of this paper.

I shall simply mention those positions that are attainable through what we term the higher education of women, and the principal obstacles in the way of their attainment.

These *positions*, in a word, are found in educational and literary pursuits, and in medicine, law and theology. The *obstacles* are founded on prejudices as to the natural fitness of women for any professional career whatever; from a reluctance on the part of universities to rearrange their machinery and open their doors to women.

III. THE ADJUSTMENT OF IRREGULARITIES.

At the outset I take this position. If it can be shown that a university education, or any similar form of higher culture, will satisfy the just claims of women, and result in their elevation as it promotes man's elevation, this privilege should be cheerfully accorded to them.

The reasons which lead me to take this position are:—(1) The enlargement of woman's sphere has a pressing cause. because there is an increasing number of women who have to support themselves. (2) If one class of the community, as men or women, be placed at a disadvantage, the other suffers proportionately. (3) The assumed intellectual disparity between men and women is due more to controllable circumstances than to any innate difference. (4) Even if it could be shown that the practical advantages arising from a higher education were the exclusive right of men, it cannot be denied that women, in common with men, should share in those personal enjoyments that arise from a highly cultivated intellect.

But how can it be shown that the educational privilege desired would meet the case? For the time assuming the *onus probandi*, allow me to suggest that the evidence will appear on referring to the history of the movement, and noticing what has been already accomplished by women of culture.

Such women have occasionally been conspicuous in all ages. Profane history furnishes many examples, from Homeric times to the present. We read in the Iliad (xi. 739) of women employed in the science of medicine ; in the Odyssey (vi. 227) also Homer speaks of women thus officiating. Euripides bears similar testimony. Sappho seems to be the only woman in antiquity whose productions by common consent stand on the same level with illustrious poets of the other sex. Many Athenian women, not aiming at professional distinction, set about making themselves fit companions of the most elevated and illustrious among men. They accordingly studied all the arts, became familiar with all philósophical speculations, and instructed themselves in politics. We need refer only to Aspasia, wife of Pericles. Her home was the resort of all the great men in Athens ; and Socrates, in his "Memorabilia," acknowledges her as his teacher in philosophy. These were exceptional cases, for historians assert that the debased condition of women generally had much to do with the decay of Athens.

This abnormal state of things was long perpetuated and tolerated in many lands ; but we have reason to believe that the days of wasted activities and subjected intellects are about numbered throughout the civilized world. The principal asserts itself with the early rise of universities, soon after which women began to claim equal educational privileges with men.

Let us take a short survey of this movement, first in continental Europe. As early as 1235 we find two women graduating at the University of Bologna, and, subsequently, lecturing on the Institutes of Justinian. Another graduate in medicine became, in 1400, a professor in her own university. In 1564 a legal graduate was appointed to a chair in the University of Cordova ; in 1557 another took a professorship in learned languages at Padua. In 1855 the Emperor of Russia, in order to promote the higher education of women, opened 186 schools for girls, modelled after the gymnasien of Germany. So eagerly was this privilege appreciated that in a short time 23,400 pupils were enrolled. The medical schools were opened to women, but soon closed, on account of the jealousy of regular practitioners—driving many ambitious women to Switzerland, where fourteen graduated. At present, however, there are 423 female medical students in St. Petersburg.

Italy, as if mindtul of her own renown in arts and letters, is found in the front rank of nations progressive in this movement. The Italians are determined, they say, "to educate the intellect of those who are to be the earliest teachers of men." In 1209 this liberal feeling first appeared, when the degree of L.L.D., was conferred on Betissia Gozzedini. Other cases soon followed at Padua, Pavia, and Milan. Among women distinguished at the Universities were professors of philosophy, of mathematics and of Greek. One lady took the place of her husband during his illness, as professor in anatomy, delivering her lectures from behind a screen. In 1861 schools for girls were established at Milan. In 1876 the Universities of Italy were opened to women. Thus we see that this land, with all its popular ignorance and debasing superstitions, bids fair to have the honor of being the first of all civilized nations to possess a completely organized system, open alike to both sexes, from the elementary schools to the University.

In France the Universities are open to women, but the link between her Public Schools and the Colleges is wanting. Boys are favored with good secondary schools, but those for girls are poor. They may enter convents, but the instruction is very superficial. Hence the women at French Universities are mostly foreigners, there being in Paris alone fourteen lady medical students from England.

Germany, foremost in the higher education of men, seems so to regard the mind and vocation of women that their education terminates at a comparatively early age. Their course is meagre—classics, higher mathematics and science being generally omitted ; consequently few German women ever graduate. In 1817 one was allowed to practice in a certain department of medicine ; the next did not appear until 1874. However, the Germans are aiming at improvement. Leipzic University now offers degrees to women, and there are in Germany more colleges exclusively for women than in any other country.

In Austria we find the University of Vienna admitting women to lectures when the professors do not object. The Universities of Denmark open all departments but theology. Their system of scholarships, however, is unjust ; since clever women may head the list, but all bursaries are reserved for men. The Universities of Sweden are open, except in law and divinity. Throughout the continent, in fact, the older Universities are becoming less exclusive, and a new departure seems to be taking place.

Turning to England, we find better secondary schools for girls than on the continent, but greater tardiness on the part of the universities. The necessity for providing suitable feeders on the continent, and in England the desirability of some goal of endeavor in the form of university distinctions, are creating a general opinion in favor of good secondary schools leading to universities, open alike to both sexes.

In England there is still much room for improvement in girls' schools. While ample provision is made for boys, girls are treated as a separate part of the community, to be provided for by separate tuition in its many forms. This at best is fragmentary and insufficient, the great majority of the English girls being educated by governesses or in small boarding schools. The effect of this system is that girls, instead of being prepared to take their place beside their brothers in higher education, too often become "accomplished nonentities," better qualified for such engagements and pursuits as fashion and frivolity stamp with their approval than those requiring serious intellectual effort. Too many mothers see that their sons are qualified to make their own way in the world, but seem to take it for granted that their daughters will have theirs made for them. This idea was illustrated in the case of the kind mamma who begged the teacher that her daughter might not be troubled with the farthings and half-pence of arithmetic, "because," as she said, "she can have no use for them when she marries: her husband and housekeeper will do all that for her." Fortunately, this prejudice is disappearing, and the endowed schools for girls are improving. Courses of lectures to women are being instituted, such as those by Professor Huxley at the London Institution, which give direction and stimulus to private study. King's College in one year registered 530 women for these lectures. Principal Barry states that the papers of the ladies were quite as good as those of the other sex, and infinitely better expressed.

In University education proper, the first step was taken fourteen years since, when Cambridge established local examinations for women. So evident were the benefits resulting, that Edinburgh followed Cambridge in 1865, Oxford in 1869, the two Irish Universities in 1873, and St. Andrews in 1877. A degree, "Literate of Arts," is conferred by several of those Universities on the completion of a course equal to that for M.A. At Edinburgh, for example, the course includes English Language and Literature, Logic, and Metaphysics, Moral Philosophy, Experimental Physics, Mathematics, Botany, Geology, Chemistry, and Latin. So many women are availing themselves of this university test, not to speak of the "school locals," that in England and Scotland there is accumulating such a force of persons virtually entitled to degrees in arts, that all discriminating barriers must soon give way. We can hardly arrive at any other conclusion. In the meantime, biding the verdict of the universities, the "Women's Educational Union" was organized in 1872, under whose supervision there are 18 endowed schools for girls —six in London, in two of which 1,000 pupils are enrolled—besides 38 other schools, self-supporting. The "Society for the Extension of University Teaching in London," furnishes valuable lectures to women. There are also the "Cambridge Association for Promoting the Higher Education of Women," "Edinburgh Ladies' Association," "Rugby Council," a means of communication between ladies who have passed any university examination; the "National Union of Scotland," whose most successful students are sent to some foreign institution for a finishing course. As if these were insufficient, there is a regular system of instruction by correspondence at Edinburgh and Cambridge. These organizations indicate a widespread desire for higher education, and show the inadequacy of ordinary means and methods.

Another step is gained by such schools as "Girton College" and "Newnham Hall," Cambridge, in which classes are conducted by 26 of the university professors. The regular examination papers are given to the ladies thirty minutes after they are placed before the gentlemen; and "degree certificates" are given, indicating the rank these candidates would have taken at the university if they had been men! Only a paper wall remains to be removed at Cambridge. A similar institution is talked of for Oxford. London University now grants degrees to women, and 63 candidates presented themselves at the examination just held. Of eleven female candidates at the first examination, six took honors, four took exhibitions—one standing second in the whole list of candidates. The highest mathematical prize in 1877 was carried off by a lady, who would have been a "senior wrangler" but for the crime of being a woman.

Queen's, Ireland, will follow Trinity with her affiliated "Alexandra" as soon as secondary education improves. The College of Physicians, Dublin, in 1876 received five women to medical degrees, several of whom had been denied similar privileges at Edinburgh. It is a significant fact that the incipient Victoria University of Manchester is to be open to women. So surely are restrictions being removed and exclusiveness yielding to more liberal ideas.

England, however, has been outstripped by one of her colonies—the first university in the British dominions to admit women to degrees being that of New Zealand, where a Miss Edgar graduated B.A. in 1877.

I cannot conclude the historical part of this paper without a glance at the United States and Canada. The doctrine of equality in education for both sexes was first advocated on this continent in Boston 53 years ago, and resulted in the establishment of a High School for girls. As in the case of the Russian and Dublin medicals, the men were alarmed by the great success of the movement. The school was closed, and the girls were sent to the Grammar School with the boys.

In 1833 Oberlin College was founded, open to both sexes. In 40 years 620 women have graduated. Mount Holyoke Seminary for girls was opened in 1837; Vassar, in 1865; Michigan University opened its doors to women in 1870; Boston, in 1871; Cornell, in 1875. Harvard and Yale have only the "locals" after Oxford. In all there are over 100 colleges in the United States open to women.

In medicine, the first College was open in Boston, 1848; in Philadelphia, 1850; in New York, 1863. There are over 500 lady doctors in the United States, some being college professors.

Law has its share—the first lady lawyer appearing in Chicago. Many of these do not plead in court, but are engaged in office work, and several being married to lawyers, practise with their husbands. In the teaching profession, as we know, many distinguised positions are occupied by women.

Lastly, turning to Canada, I believe the honor of inaugurating the movement is claimed by Victoria University, where the first lady matriculant in Arts passed with honors in September, 1878. Her lectures and degrees are accessible to ladies, a number of whom are at present availing themselves of the privilege. Queen's is to be congratulated for taking a similar position. Toronto and McGill have only reached the Oxford standard of giving local examinations, the satisfactory results of which will doubtless open the way to greater privileges. The Chancellor of Toronto University refers in hopeful terms to the experiment, and states that their expectations have been exceeded—extraordinary ability being manifested, especially in science.

For the preparation of these candidates the facilities offered in our High Schools and Female Colleges are unsurpassed. In the former, ladies are or may be thoroughly prepared for junior and senior matriculation; in the latter a substantial education is offered, to displace, let us hope, the nominal scholarship and delusive, expensive "accomplishments" too prevalent in girl's schools.

And here this statement of facts must end. What are the conclusions fairly deducible? I think our outlook shows,—

1. That throughout the civilized world there is a growing conviction of the value of higher education for women; or, as one has said, "slowly but surely new notions of a curriculum, and a higher standard within it, have filtered into the many obscure nooks and cranies of the educational world."

2. That this conviction is moving the nations to provide means for the attainment of this object.

3. That while initial attempts were feeble and infrequent, the gentler half of intelligent communities are becoming strongly united in their appeals, and "listening senates" are graciously devising liberal things.

4. That what at one time were regarded as unanswerable objections are now seldom urged.

5. That educated women have succeeded in all the learned professions.

A certain mathematician, after reading "Paradise Lost," wrote on the last page, "it is very pretty, but it does not prove anything." If any of you are waiting fuller demonstration, and ask, "Who will show us any good?" allow me to enumerate a few of the advantages which I think would likely follow the removal of present discrimination against women.

(a) The inestimable personal enjoyment attained only by persons of culture.

(b) A literary qualification for such positions as are attainable only by the educated, the duties of which can be discharged by educated women as well as by educated men.

(c) The many advantages accruing to society in general through the influence of educated women.

(d) Much of the special, artificial and abnormal development fostered by methods too prevalent in girls' education would likely be superseded by that which is more liberal, more thorough, and more healthful.

(e) Our educational machinery might be simplified; many institutions called into existence by prejudice against co-education could be dispensed with, such, for example, as female colleges in close affiliation with Universities.

In a word, a very mischievous educational fallacy would be corrected. We make *men* of our boys by exercising faith in their latent powers, rousing their ambition, and subjecting them to vigorous mental discipline—in short, by treating them as men. We too often keep our girls *children* by assuming an innate incapacity for sterner exercises, by avoiding serious subjects, and by a spoon-feeding process that naturally produces a class of effeminates. Every teacher knows that a similar process with boys would produce similar results. This fallacy, I think, would be exposed and corrected by the adoption of common-sense methods.

I can refer to only four objections. 1. The danger of diverting woman from her proper domestic sphere. I merely repeat that the sphere of woman must be determined by circumstances, and that if a university education would enable her more efficiently to discharge her duties, no conventional vaporizing nor traditional nonsense should exclude her from the privilege.

2. The dangers of co-education. When homes and schools in general become what some homes and schools are in reality, school life will be merely an expansion of home life, preparatory to the actual life of society. No greater necessity need exist for separating boys and girls in schools than in the family. Practically it has come to this, the testimony of the best educationalists favours it, and the conventional idea is being generally discarded. Experience proves that the ethical and educational effect of co-education is mutually beneficial. Says Richter, "To ensure modesty I would advise the education of the sexes together. I will guarantee nothing in a school where girls are alone together, and still less where boys are alone." Another says, "Why it should be considered so dangerous and doubtful for boys and girls, or men and women, to share each other's serious pursuits, whilst they are allowed to share each other's frivolities, is a matter of perpetual surprise to those who look beyond the range of a custom or convention which has worked much mischief."

3. The danger of lowering the standard of education. This assumes a universal incapacity in woman unsupported by general experience, and frequently overturned by the significant results of contests in scholarship. All that woman wants is an even start in the race. If men decline the offer, let them drop this objection.

4. The danger of over-work, If, as I belive, the amount of our healthy mental activity is the measure of our intellectual enjoyment

and strength, no student was ever injured from study in itself. "*La petite sante*," so common in girls, arises mainly from two causes: (*a*) A feeble constitution, inherited from mothers with tender cogitation; (*b*) personal habits, neglect of nature's hints and imperious demands. The foster-parent of this evil is the idea, prevalent in certain circles, that there is something peculiarly ladylike in a delicate state of health, in a pallid, languid, tight-laced creature of the drawing-room and sensation novel, with her proportionate mental feebleness. Not undervaluing genuine refinement, I would adopt the language of Cousin:—"Adore grace, but be careful not to detach it from strength; for without strength grace quickly withers, like a flower separated from its supporting stem."

Leaving further objections, allow me to summarize. I have tried to show,

(1) That women may very properly have special callings, as well as natural domestic sphere.

(2) That discriminations against women, as to natural ability, are both impolite and unjust.

(3) That she is therefore entitled to all the privileges of a superior education.

(4) That this principle is being practically acknowledged by the leading nations of Europe and America.

(5) That the success of women in professional life fully justifies the concessions granted them.

(6) That common objections are traceable to misconception and traditional prejudice.

Finally, I would suggest,

(*a*) That a fair trial be made of local examinations.

(*b*) That to awaken general interest and save labor in teaching, the High School Intermediate be accepted, *pro tanto*, at these examinations, and that the certificate for having passed the University Local Examination should in some way be recognized by our Educational Department.

(*c*) That if the "locals" prove satisfactory the candidates be allowed to proceed to their degree in Arts, and enjoy all the advantages it confers on the men.

(*d*) And lasty, that in their several fields of labour, women thus qualified be paid in proportion to the intrinsic value of the work done; not according to the arbitrary ideas of their employers, nor the supposed necessities of the worker.

All this and more will be done if we forget not that

> "The woman's cause is man's; they rise or sink
> Together, dwarf'd or Godlike, bond or free."

ARCHIBALD MACALLUM, M.A., LL.D.

The late Archibald Macallum, M.A., LL.D., was a representative of a numerous class of Canadians, who, coming to this country in early youth, and at a time when educational advantages were of a very primitive character, have, in spite of these adverse circumstances, made themselves, in the best sense, educated men.

Mr. Macallum was born in Scotland, in 1824, of Highland parents, who came to this country when he was quite young, and settled at Point Fortune, on the Ottawa River. It was not till he had reached the age when most boys now enter the High School that he was able to begin to acquire the elements of an English education, though this was probably more than counterbalanced by his acquaintance with the beauties of the Gaelic language.

For some years, and while engaged in different employments, he steadily kept in view the possibility of his securing a liberal education, and for this purpose, in 1847, he entered the Toronto Normal School, obtaining in due course the first First Class Certificate granted by the educational authorities of that Institution. In 1849 he was appointed Senior Teacher of the Provincial Model Schools, and being highly esteemed, not only by the Chief Superintendent of Education, but also by the officers immediately in charge, he became in 1853 Principal of that Institution. Of the efficiency of the school under his management, many of those who were educated there, as well as a large number of teachers in training at that time, and who are at present carrying on the work of education all over the country, can testify.

While he was Headmaster of the Model School, Mr. Macallum assisted on different occasions by conducting classes in the Normal School, especially the class in Book-keeping, which was taught by him for a number of years.

He prepared a Chart and Manual on Natural History, which at one time were extensively used.

In the year 1858, several changes having taken place in the Normal and Model Schools, Mr. Macallum accepted the position of Principal of the Public Schools of the City of Hamilton, a position which he held till his death, a period of twenty-one years, with much acceptance to the public and profit to the schools of the city of Hamilton.

This Association was formed in 1860: our late friend was one of the few who then assembled for its organization, and of the Ontario Teachers' Association he continued up to the time of his death an able and judicious member.

In his perseverance, in his thirst for knowledge, in his kindly intercourse with his fellow-members, in his conscientious discharge of the duties of his profession, we may, with profit and safety, follow the example of our departed friend and co-worker.

On behalf of the Committee,

ARCHIBALD McMURCHY, *Chairman.*

ONTARIO ASSOCIATION

—FOR THE—

ADVANCEMENT OF EDUCATION.

TREASURER'S REPORT FOR THE YEAR 1878–9.

RECEIPTS.

Balance from last year—in Bank, $140.79; Cash on hand, $2.63	$143 42
Interest on Deposit up to May 1st, 1879	8 20
Members' Fees	73 50
Proceeds of sale of Reports	29 70
Advertisements in Annual Report	22 50
	$277 32

DISBURSEMENTS.

Printing Annual Report for 1878	$79 75
Secretary's Account for 1878	6 60
Minute Secretary for 1878	4 00
Treasurer's Postage Account	0 50
Expenses of Excursion to Niagara Falls, 1877	20 00
Advertising Convention, 1878	2 00
Caretaker Normal School Buildings	4 00
Gas Account	1 50
Balance in Bank, $148.99; Cash on hand, $9.98	158 97
	$277 32

F. S. SPENCE,
Treasurer.

Audited and found correct,

W. McINTOSH,
A. McMURCHY, } *Auditors.*
H. DICKINSON,

MINUTES

OF THE

TWENTIETH ANNUAL CONVENTION

OF

THE ONTARIO ASSOCIATION

FOR THE

ADVANCEMENT OF EDUCATION,

HELD IN

THE PUBLIC HALL, NORMAL SCHOOL, TORONTO,

AUGUST 10*th*, 11*th*, *and* 12*th*, 1880.

TORONTO:
C. BLACKETT ROBINSON, PRINTER, 5 JORDAN STREET.
1880.

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OFFICERS.

1880–1881.

President:

ROBERT ALEXANDER, Galt.

Vice-Presidents:

DAVID BOYLE, JAMES L. HUGHES, and JOHN SEATH.

Recording Secretary:

ROBERT W. DOAN, Toronto.

Corresponding Secretary:

ADAM PURSLOW, Port Hope.

Treasurer:

F. S. SPENCE, Toronto.

Executive Committee:

Messrs. MAXWELL, SOMERSET, MACKINTOSH, LITTLE, DEARNESS, MacMURCHY, McHENRY, MILLER, CARSON, RANNIE, SMIRLE, DUNCAN, McALLISTER, and HARVEY.

MINUTES

OF THE

TWENTIETH ANNUAL CONVENTION

OF THE

ONTARIO ASSOCIATION

FOR THE

ADVANCEMENT OF EDUCATION,

HELD IN THE PUBLIC HALL, NORMAL SCHOOL, TORONTO,

On the 10th, 11th, and 12th of August, 1880.

Tuesday, August 10th, 1880.

The Convention met at 11 a.m.

The President, Mr. R. Alexander, in the Chair.

The Meeting was opened with the reading of a portion of Scripture, and with prayer by Mr. A. MacMurchy.

Moved by Mr. Maxwell, and seconded by Mr. Strang, That inasmuch as the Minutes of the last Convention were printed and distributed, the reading of them be dispensed with, and that they be confirmed.—*Carried.*

Moved by Mr. Hughes, and seconded by Mr. Boyle, That Mr. Wm. Rannie be Minute Secretary.—*Carried.*

Mr. Spence, the Treasurer, read his Annual Report.

Mr. Seath called attention to the fact, that one of the papers read during the last Convention had been published in an educational journal before appearing in the printed Minutes. The Secretary, Mr. Hughes, gave a satisfactory explanation in regard to the matter referred to by Mr. Seath.

Moved by Mr. McAllister, and seconded by Mr. Miller, That Messrs. Mackintosh, MacMurchy, and Doan, be the Auditing Committee.—*Carried.*

Moved by Mr. Mackintosh, seconded by Mr. Taylor, That the Secretary, the Treasurer, and Messrs. McAllister, Seath, and the mover, be a Committee to ascertain the most economical way of printing the Minutes.—*Carried.*

Moved by Mr. Hughes, and seconded by Mr. Dearness, That Messrs. MacMurchy, Scarlett, and Mackintosh, be a Committee to prepare a memorial notice on the death of Mr. McGann.—*Carried.*

A telegram from Mr. D. Fotheringham, of Aurora, was read, stating that illness made it impossible for him to fulfil his engagement to introduce "Recent School Legislation." A conversation followed in regard to procuring a substitute. It was finally agreed that Mr. Harvey, of Barrie, who had been appointed to introduce the abovenamed subject in the Public School Section, should be asked to read his paper before the Convention. If Mr. Harvey could not do so Mr. Miller, of St. Thomas, agreed to introduce the subject.

The Convention then adjourned.

AFTERNOON SESSION.

The Convention met at 2.30.

The President in the Chair.

The Chairman introduced Hon. Adam Crooks, Minister of Education, to the Convention.

Mr. Crooks cordially welcomed the Convention to the Normal School building. He said that he warmly sympathized with their efforts, and that he had always watched the proceedings of former Conventions with great interest, in order to ascertain the opinions of the educators of the country. He also read statistics showing that the number of first and second-class certificates was on the increase, while the number of third-class certificates was decreasing.

Mr. Miller, of St. Thomas, introduced "Recent School Legislation."

The discussion on this subject was continued by Messrs. Allen (Grey), McHenry, Hughes, Chapman, Lindsay, Dearness, Dickenson, Tamblyn, Mackintosh, McPherson, Taylor, and Maxwell.

Mr. McAllister moved, seconded by Mr. McHenry, That while the members of this Association highly estimate the efforts made to secure improvement in the training of teachers by means of County Model Schools, and the encouragement given to the establishment of County Associations, they cannot but feel called upon to condemn, as retrogressive steps, the withdrawal from School Boards of the power to levy rates for school accommodation, and the discretionary power given to some School Boards to curtail the summer holidays.—*Carried.*

Moved by Mr. Hughes, seconded by Dr. Tassie, That this Association appoint a Committee on Legislation to report to the Minister of Education annually, or oftener, the views of the teaching profession on those questions which are, or ought to be, brought before the Provincial Legislature; said Committee to consist of nine members, three to be nominated by each section of the Association.

This motion was discussed by Messrs. Dearness, Strang, Mackintosh, Jennings, and MacMurchy.

Moved in amendment by Mr. Dearness, seconded by Mr. McAllister, That the Board of Directors be instructed to appoint a Standing Committee on Legislation affecting Education, to report to the Minister the opinions of this Association, and to watch such Legislation and advise on it, in accordance with the expressed opinions of the local Associations, while it is occupying the attention of the House.

The discussion that followed was participated in by Messrs. G. W. Ross, Dickenson, Spence, McLean, Johnston, and others.

The original motion was *Carried.*

Moved by Mr. Jennings, and seconded by Mr. Ross, That the thanks of this Association are due, and that they are hereby tendered, to Mr. Miller for his address on "Recent School Legislation."—*Carried.*

The Executive Committee reported that they had the subject of "Representation at the Provincial Association" under consideration, and that they begged to report progress, and asked leave to sit again. The request of the Committee was granted on motion of Mr. Mackintosh, seconded by Mr. Hughes.

The Convention then adjourned.

EVENING SESSION.

The Convention met at 8.30.

The President in the Chair.

The President, Mr. R. Alexander, delivered an address on the Early History of the Association, and on the Teaching of English.

Moved by Mr. Smith (Wentworth), seconded by Mr. Wood, That the thanks of this Association be tendered to Mr. Alexander for his able and interesting address.—*Carried.*

The President said that he had much pleasure in calling upon an ex-President of the Association, Prof. Goldwin Smith, to address the meeting.

Mr. Smith then gave a very pleasant address, and closed by extending to the members of the Convention an invitation to visit him and Mrs. Smith, at the Grange, on Wednesday afternoon, at 5 o'clock.

At the conclusion of Mr. Smith's address, on motion of

Mr. Hughes, seconded by Mr. Chapman, a vote of thanks was tendered him for his presence at the Convention, and for his kind invitation.

Mr. John S. Clark, of Boston, favoured the Association with a few remarks on educational matters in the State of Massachusetts.

A vote of thanks to Professor Clark was moved by Mr. F. S. Spence, and seconded by Mr. H. Dickenson. The Motion was *Carried.*

The Convention adjourned at 9.30 p.m.

Wednesday, August 11th, 1880.

The Convention met at 2.15.

The President in the Chair.

Minutes of previous meeting were read, and on motion of Mr. Duncan, seconded by Mr. Wood, they were approved.

The Board of Directors reported, That it is desirable that no change be made in the Constitution in the way of altering the system of representation, but that the local Associations be urged, at the proper time, by circular, to appoint a delegate annually to the Provincial Association.

Mr. Hughes moved, seconded by Mr. A. Morrison, That the report of the Directors be received and adopted.

The report was discussed by Messrs. Reazin, Harvey, and others.

In amendment, Mr. Smirle moved, and Mr. Duncan seconded, That the report of the Directors be laid on the table for further consideration.

The amendment was *Carried.*

Mr. John S. Clark, of Boston, delivered an able and exhaustive address on Industrial Drawing, exhibiting a large collection of drawings and models.

At the close of Mr. Clark's address, Mr. Wood moved a vote of thanks to the lecturer, Mr. Hughes seconded the motion, and intimated his willingness to furnish the Association, at its next Annual Convention, with an exhibition of the progress of Art Education in the Toronto schools.

The motion was *Carried.*

Mr. Boyle, of Elora, read a very instructive and interesting paper on "Physical Science in the Schools of Ontario."

Mr. J. M. Buchan, in an appreciative speech, moved a vote of thanks to Mr. Boyle for his paper. This motion was seconded by Mr. Smith.—*Carried.*

The Convention adjourned at 4.35 to meet at the Grange, in accordance with an invitation extended to them on the previous evening by Professor Goldwin Smith.

After spending a couple of hours pleasantly at the Grange the President called the members together, when Mr. McFaul, of Lindsay, moved, and Mr. Fotheringham, of Aurora, seconded, a vote of thanks to Mr. and Mrs. Smith for their hospitality.—*Carried.*

EVENING SESSION.

The Convention re-assembled at eight o'clock.

The President in the Chair.

The President announced the receipt of a telegram from Professor Wells, Canadian Literary Institute, Woodstock, stating that he was prevented by illness from being present to address the Convention on "The Teacher as a Moulder of Character."

Moved by Mr. R. W. Doan, seconded by Mr. Herner, That the Committee appointed to prepare a memorial on the death of Mr. J. B. McGann be, and is hereby empowered, to insert such memorial in the Minutes for the present year. —*Carried.*

Reports were received, regarding County Associations, from—

Mr.	Reazin	Victoria	Representing	250	Members.
"	Knight	E. Victoria	"	40	"
"	Coates	Halton	"	70	"
"	Herner	Waterloo	"	70	"
"	Duncan	Essex	"	100	"
"	Smirle	Ottawa	"	50	"
"	Munro				
"	Maxwell	S. Essex	"	60	"
"	Lewis	Toronto	"	140	"
"	Hunter	Simcoe	"	124	"
"	Harvey				
"	Boyle	S. Wellington	"	120	"
"	Johnston	Northumberland	"	130	"
"	Smith	Wentworth	"	190	"
"	Dearness	E. Middlesex	"	118	"
"	Mackintosh	N. Hastings	"	70	"
"	Jennings	Ontario	"	75	"
"	Wood	W. Middlesex	"	112	"
"	Ferguson	Lambton	"	80	"
"	Henderson	S. Simcoe	"	50	"
"	Allen	S. Grey	"	90	"
"	Park	S. Hastings	"	117	"
"	Taylor	E. Huron	"	75	"
"	Munro	S. Perth	"	120	"
"	McLurg	W. Lambton	"	109	"
"	Lindsay	E. Grey	"	70	"
"	Rannie	N. York	"	75	"

The Convention adjourned at 10 o'clock.

Thursday, August 12th, 1880.

The Convention assembled at two p.m.

The President in the Chair.

The Minutes of last meeting were read. On motion of Mr. Herner, seconded by Mr. McLurg, they were confirmed.

Mr. Mackintosh presented the report of the Auditing Committee, which was as follows: "Your Committee appointed to audit the accounts of the Treasurer of this

Association beg to report that they have carefully examined the accounts presented by the above-named officer, together with the vouchers therefor, and that they have found them correct."

Mr. Mackintosh moved, and Mr. Smith seconded, the adoption of the report.—*Carried.*

Mr. Miller referred to a mistake in the report of the newspapers, stating that he considered the County Model Schools were in an inefficient state. He had stated that he considered them very efficient.

Mr. McAllister moved, seconded by Mr. Smith, that a clause be added to the Constitution providing that the Secretary of each Section be, *ex officio*, a member of the Board of Directors.—*Carried.*

The report of the Executive Committee on the Election of Officers was then read, as follows:—

The Executive Committee beg to report that the following gentlemen be appointed as Officers for the ensuing year:

President—MR. ROBERT ALEXANDER, Galt.
Vice-Presidents—1. MR. DAVID BOYLE, Elora.
2. MR. JAMES L. HUGHES, Toronto.
3. MR. JOHN SEATH, St. Catharines.
Recording Secretary—MR. ROBERT W. DOAN, Toronto.
Corresponding Secretary—MR. ADAM PURSLOW, Port Hope.
Treasurer—MR. F. S. SPENCE, Toronto.

Mr. Rannie moved, and Mr. Duncan seconded, the adoption of the report.—*Carried.*

Mr. Spence presented a report of the Special Committee on Printing the Minutes, as follows: "It is recommended that the Minutes of this Association be furnished by the Secretary, for publication, to the *Canada School Journal*, and to the *Educational Monthly.*"

Mr. Spence moved, seconded by Mr. Henderson, That the report be adopted.

The report was discussed by Messrs. MacMurchy, Mackintosh, McAllister, and Doan.

Moved by Mr. Carson, seconded by Mr. Wood, in amendment, That the Board of Directors cause the Minutes to be printed, as usual, in pamphlet form, it being understood that they will issue the Minutes at as early a date as possible.

The amendment was carried, after discussion by Messrs. Spence, Knight, Mackintosh, Barker and Harvey.

Moved by Mr. Boyle, seconded by Mr. Wood, That the thanks of the Association be tendered to the Great Western Railway Company, for their courtesy in endorsing the tickets issued to teachers west of Hamilton, and in offering to place a special car at their disposal.—*Carried.*

Mr. Dearness read a paper on "Professional Examinations in County Model Schools."

Mr. W. Mackintosh moved, and Mr. McFaul seconded, a vote of thanks to Mr. Dearness for his paper.—*Carried.*

Mr. G. W. Ross gave an interesting address on the working of Model Schools, containing many hints in regard to the work necessary to be done, and suggestions for improvements in the future.

Moved by Mr. J. H. Smith, seconded by Mr. Scarlett:

1. That the Head Masters of the County Model Schools should be the holders of first-class Provincial certificates.

2. That an extra room for Model School purposes be considered indispensable.

3. That the Legislative grant be not less than $200 per annum, and that the County Councils be required to raise an equivalent, either by making a grant for the purpose or by imposing a rate bill on teachers-in-training not to exceed $10 per term, and in the case of cities, that the Board of Education be invested with the same powers as County Councils in regard to the imposition of fees.

4. That the Model School term shall begin on the 1st of September and end on the 30th of November.

5. That Boards of Trustees be recommended to engage an assistant during the Model School term in order to enable the Head Master to devote more attention to the students of the County Model School.

6. That Head Masters, in addition to delivering the lectures prescribed for County Model Schools, be required to carefully supervise the method of teaching pursued by the students themselves, and to award the marks for teaching given them while in attendance.

7. That instead of the present maximum of twenty-five teachers-in-training at each Model School, Public School Inspectors be instructed to admit only qualified candidates to the number of not more than five for each room used for Model School purposes.

8. That it is desirable to have a convention of Model School Masters called at some central point to discuss the best means of increasing the efficiency of the reports.

—*Carried.*

Moved by Mr. McAllister, seconded by Mr. Carson, That Messrs. Smith, Scarlett, Dearness, Ross, Prof. Young, and Alexander, be a deputation to the Minister of Education to present the resolutions just adopted.—*Carried.*

Moved by Mr. Wm. Rannie, seconded by Mr. Smirle, That when this Convention adjourns it do stand adjourned until the next Annual Meeting.—*Carried.*

Votes of thanks were passed to the Minister of Education for the use of the Normal School Hall, to the Railway Companies for reduced travelling rates to members, and to the city daily papers for the very full reports given of the proceedings of the Convention.

After singing the National Anthem the President declared the Convention adjourned.

ONTARIO ASSOCIATION FOR THE ADVANCEMENT OF EDUCATION.

Treasurer's Report for the year ending August 9th, 1880.

RECEIPTS.

Balance from last year—in bank	$148 99	
" " Cash on hand.	9 98	
		$158 97
Interest on deposit up to May 1st, 1880		9 05
Members' fees		48 00
Proceeds of sale of Reports		62 64
		$278 66

DISBURSEMENTS.

Paid Dr. McVicar's travelling expenses	$15 00
" caretaker Normal School Buildings	5 00
" Minute Secretary, Mr. A. Hendry	4 00
" for printing Minutes	87 00
" " express charges and postage	4 90
Balance on hand—on deposit, $158.04; cash, $4.72	162 76
	$278 66

F. S. SPENCE,
Treasurer.

PUBLIC SCHOOL SECTION.

THEATRE, NORMAL SCHOOL, TORONTO,
Tuesday, August 10th, 1880.

The first meeting of the Public School Section was held in the Theatre of the Normal School, Toronto, this morning at 12 o'clock—Mr. Rannie, the Secretary of the Section, in the Chair.

Mr. McAllister moved, and Mr. Alexander seconded, That Mr. R. W. Doan be Chairman of the Section in the absence of Mr. Dickenson.—*Carried.*

Mr. Alexander moved, and Mr. Taylor seconded, That Representation of the Provincial Association be the first subject to-morrow morning, providing the General Association does not dispose of it this afternoon.—*Carried.*

Mr. Alexander moved, and Mr. Chapman seconded, That this Section meet in this room at 9 o'clock a.m., to-morrow, Wednesday.—*Carried.*

Wednesday, August 11th, 1880.

Section met at 9.15. Mr. Dickenson in the Chair.

Opening exercises by Mr. Duncan.

Minutes of previous meeting read and approved.

Mr. Chapman (Waterloo), introduced "Representation of the Provincial Association."

Discussion continued by Messrs. Munro (Ottawa), McQueen (Kirkwall), Boyle (Elora), Smirle (Ottawa), Suddaby (Berlin), Jennings, Spence (Toronto), Johnson (Cobourg), Duncan (Essex), Kinney (Prince Edward), Bole (Frontenac), Taylor (Clinton), Alexander (Galt), Morrison (Toronto).

Moved by Mr. F. S. Spence, and seconded by Mr. Robert Alexander, That in the opinion of this Section the basis of Representation should be as follows, viz.: Five delegates to be elected by each local Association recognized by the Education Department, at least one of whom should be a High School Master, except in cases where no High School Master is a member of such Association, and one a Public School Inspector, it being understood that such arrangements should be made as would not cause one Association to be at more expense than another in sending such delegates.—*Carried.*

Mr. W. B. Harvey, of Barrie, made a few remarks in reference to "Recent School Legislation," and explained that on account of a storm he was unable to be present yesterday.

A discussion followed Mr. Harvey's remarks, participated in by Messrs. Alexander, Jennings, Taylor, Johnson, Wood, and Gibson.

Moved by Mr. S. McAllister, and seconded by Mr. W. B. Harvey,—

1. That the discretionary power given to Public School Inspectors to permit Third Class Teachers, holding Intermediate and Third Class Certificates, to go up for their professional training for a Second Class Certificate, at the end of a year's experience in teaching, should be withdrawn.

2. That the present method of granting permits, and permanent certificates, to Third Class Teachers, is liable to abuse, and should be altered so as to afford a reasonable guarantee that those teachers securing these privileges are worthy of them.

3. That the votes for Public School Trustees should be by ballot.

4 That the age of Candidates on entering the Profession of Teaching should be—for females, eighteen (18), and for males, twenty (20) years.

These motions were carried consecutively.

Messrs. Boyle, Duncan, and Smirle were appointed a committee to co-operate with members selected from the other Sections on the matter of Superannuation.

The Section then adjourned to meet on Thursday morning at 9 o'clock.

Thursday, August 12th, 1880.

Section met at 9 o'clock a.m.

Mr. R. W. Doan (Toronto), in the Chair.

Opening exercises by Mr. McQueen (Kirkwall).

Mr. Alexander moved, and Mr. Henderson seconded, That at 10.30 a.m. the Section proceed to the Election of Officers. —*Carried.*

Mr. David Boyle then read a paper on the question: "Is it desirable to make any change in the Superannuation Regulations?"

Mr. S. McAllister read the Report of a Committee appointed to confer with the Minister of Education in reference to the Superannuation Fund.

The Committee, in fulfilment of the duty imposed upon them by the resolution passed at the last meeting of the Public School Section, waited upon the Minister of Education on the 13th of December last, by appointment. He courteously received them, and entered very largely into a discussion of the various aspects of the Superanuation Fund. As opportunity occurred, they laid the terms of the resolution before him, and advanced various reasons in its favour. He admitted the anomalous condition of the Fund, and also the meagre allowance it provided for worn-out teachers. He did not see, however, how the latter could be increased except by the co-operation of those to be benefited by it, in making larger contributions. He pointed out that already the Legislature appropriated a very large sum to supplement the moiety the teachers gave; two years ago it was two-and-a-half times, and last year it was three times as much as theirs. The Committee assured him that there would be no lack of reasonable co-operation on the part of the profession to put the Fund on a proper basis, provided the time of active service to secure the benefit of the Fund could be reduced to a reasonable length, say twenty-five years, and the allowance be increased to afford a possible means of support on retirement. His attention was directed to the liberal scheme of superannuation the English Government had adopted in favour of the Irish National school teachers. He would not hold out any hope of lessening the period of service, or, in fact, of doing anything with the Fund during the session then approaching; but he promised to give the matter his earnest consideration during the present summer, after which he would be able to indicate in what direction his opinions tended, with a view to legislation.

The Committee, after thanking him for his courtesy, then withdrew.

All which is respectfully submitted,

SAMUEL MCALLISTER, *Convener.*

Discussion by Messrs. Henderson, Duncan, Allen, Taylor, Harvey, and McQueen.

Mr. Duncan moved, and Mr. Wood seconded,—

1. That twenty-five years' service in the Profession or having attained the age of fifty entitle a teacher to superannuation.

2. That no teacher who retires before ten years' service be allowed a refund of more than ten per cent. of his payments to the Superannuation Fund.

3. That the allowance to superannuated teachers be increased, and if need be, that the yearly subscription to the Fund be increased also.

4. That provision be made for the widows of superannuated teachers.

ELECTION OF OFFICERS.

Chairman—DAVID BOYLE, Elora.
Secretary—WM. RANNIE, Newmarket.
Committee—ARCHIBALD SMIRLE, Ottawa.
SAMUEL MCALLISTER, Toronto.
JAMES DUNCAN, Windsor.
W. B. HARVEY, Barrie.
JOSEPH S. CARSON, Strathroy.
Legislative Committee—SAMUEL MCALLISTER.
R. W. DOAN.
F. S. SPENCE.

Moved by Mr. Alexander, seconded by Mr. R. McQueen, That in the opinion of this Section it would be to the advantage of the schools of the Province to retain the apparatus part of the Depository for the present, and we would very much regret to see it closed.—*Carried.*

Mr. W. B. Harvey moved, and Mr. J. Duncan seconded, a vote of thanks to the Secretary for his services during the past year.—*Carried.*

Mr. Smirle moved, and Mr. Wood seconded, a vote of thanks to the Chairman and Committee for their services during the past year.—*Carried.*

Moved by Mr. F. S. Spence, That we, as a Section, sustain the first clause of our yesterday's resolution, and ask for a committee to consider the same.

Moved, in amendment, by Mr. Duncan, seconded by Mr. S. Herner, That the Representation Question be remitted to the Local Associations for further consideration.

Amendment *Carried.*

Moved by Mr. McAllister, seconded by Mr. C. B. Linton, That rotation of examiners applied to the various Departmental Examinations would add to the improvement of education throughout the country.—*Carried.*

It was also resolved that Mr. S. S. Herner's paper on the "Uniformity of Text-books" be postponed, to be read if possible this afternoon, or if not, that the Executive Committee of this Section be requested to put it as one of the first items of business on the programme for next year.—*Carried.*

Adjourned.

WM. RANNIE, *Secretary.*

HIGH SCHOOL MASTERS' SECTION.

Tuesday, August 10th, 1880.

The Section met in the Minister's room at noon. Mr. Seath took the chair, and Mr. Strang was appointed Secretary.

The Chairman having explained that it had been thought best to alter the arrangement of the original programme, it was agreed to take up the subject of Departmental Examinations first.

Mr. McHenry read a paper on the subject, the reading of which was followed by some discussion, in which Messrs. Millar, MacMurchy, Tassie, Strang, and others took part.

Owing to the lateness of the hour and the fact that several of those present had to attend a meeting of the Executive Committee at 1.30 p.m., it was decided to adjourn the discussion until to-morrow morning.

Present at the session:—Messrs. Seath, MacMurchy, McHenry, Tassie, Purslow, Millar, Knight, Fessenden, Orr, O'Connor, Mackintosh, Smith, and Strang.

Wednesday, August 11th, 1880.

The Section met again at 9.30 a.m.

The Minutes of the last meeting were read and confirmed.

According to previous agreement the subject of Departmental Examinations was taken up first. Quite a lengthened and vigorous discussion followed, mainly with reference to the Entrance and Intermediate Examinations, the necessity of a change of examiners, and the unfair character of some of the examination papers. Messrs. Orr, MacMurchy, Oliver, Millar, Fessenden, O'Connor, Wightman, Tamblyn, Tassie, Henderson, Strang and others took part in the discussion.

Several resolutions were submitted to the meeting, but it was finally agreed to refer them to a Committee, consisting of Messrs. McHenry (Chairman), Oliver, Orr, O'Connor, and MacMurchy, with instructions to frame and report a series of resolutions at to-morrow's session covering the points on which there appeared to be substantial agreement of opinion.

Mr. Purslow then read a paper with reference to the Special Grant of $750 to Collegiate Institutes.

A discussion followed, in which Messrs. Tassie, Fessenden, McHenry, Millar, Strang, Tamblyn, and others took part. Finally, owing to the lateness of the hour, it was agreed to adjourn the discussion until to-morrow morning.

Present at the session:—Messrs. Seath, Tassie, MacMurchy (Toronto), Hunter (Barrie), Smith, Tamblyn, O'Connor, Fessenden, Henderson, Orr, Oliver, Strang, Purslow, Millar (St. Thomas), McHenry, Mackintosh, Wightman, Tamblyn, McMurchy (St. Mary's), Hunter (Waterdown), and Millar (Bowmanville).

Thursday, August 12th, 1880.

The Section met again at 9.30 a.m.

The Minutes of last meeting were read and confirmed.

On motion of Mr. Millar, a Committee, consisting of Messrs. Seath, MacMurchy, Purslow, Strang, Miller, Fessenden, Tamblyn, and Oliver, was appointed to consider the question of Superannuation of Teachers, and to suggest such alterations in the present law as would place the scheme on a more satisfactory basis.

Mr. McHenry then read the report of the Committee which had been appointed to prepare a series of resolutions covering the points discussed at the previous sessions. The Section then proceeded to discuss the proposed resolutions *seriatim*, and after some alterations and additions the following six resolutions were, on motion of Mr. MacMurchy, seconded by Mr. Hunter (Waterdown), unanimously adopted:—

1. Inasmuch as the Department has issued a regulation appointing Head Masters of High Schools presiding examiners in their own schools at the Entrance Examinations in those cases where the Inspector cannot be present, and inasmuch as the Head Masters have their full share in the examining of the papers afterwards, the High School Section would respectfully recommend that the Head Masters be placed on the same

footing as the Inspectors with regard to remuneration, as is already done in a number of schools.

2. Inasmuch as the Intermediate Examinations have reference largely to work done in High Schools, and as often those appointed to preside at the examinations have no special fitness for the work, the High School Section thinks that, as a class, the High School Masters are most competent to preside on such occasions, and would respectfully suggest to the Minister of Education the propriety of making appointments as examiners from among such, direct from the Department.

3. That this Section would desire to impress upon the Minister of Education the advisability, in the interest of education, of adopting the principle of rotation of examiners as put into practice in connection with the examinations of the University of Toronto.

4. That in order to secure a more regular gradation in the difficulty of the papers, the High School Section would recommend that the examiner who prepares the paper in any subject for the Entrance Examination should also prepare those for all the other Departmental Examinations in that subject.

5. That, taking into consideration the object of the Intermediate Examination, and the instructions given to the examiners by the Honourable Minister of Education in his circular of December, 1877, this Section considers that the paper on English Literature, given at the last examination, assumed too great maturity on the part of purely Intermediate candidates ; that the paper on Arithmetic was too difficult, while that on Algebra was wholly unsuitable.

6. That in the opinion of this section the tendency of the Intermediate Examinations has been, and is to give undue prominence in our schools to the subjects composing the mathematical group ; and to prevent the other departments from receiving that measure of attention to which their importance entitles them.

The adjourned discussion of the subject of the Special Grant of $750 to the Collegiate Institutes was then resumed. After considerable discussion, it was agreed to appoint a Committee, consisting of Messrs. Purslow (Chairman), Fessenden, MacMurchy, Strang, Seath, Oliver, and McHenry, to take into consideration the subject of the Legislative Grant for Secondary Education, and to take such action as may be agreed on by the Committee—five members to form a quorum.

Mr. Tamblyn having referred to the recent action of the Medical Council in reference to the requirements for matriculation in the College, on motion of Mr. Parker, seconded by Mr. Oliver, Mr. MacMurchy was requested to attend the next meeting of the Executive Committee of the Council, and acquaint them with the wishes of the High School Masters in regard to the Matriculation Examination.

On motion of Mr. Oliver, seconded by Mr. Parker, last year's Executive Committee was re-appointed, viz., Messrs. Seath (Chairman), MacMurchy, McHenry, Millar, and Inspector Carson.

On motion of Mr. Parker, seconded by Mr. Tamblyn, Messrs. Seath, Fessenden, and Oliver were appointed members of the Legislative Committee of the Association.

Owing to the lateness of the hour, and the meeting of the Executive Committee, it was decided to adjourn to meet again at 2.30 p.m.

Present at the session:—Messrs. Seath, MacMurchy, McHenry, Millar, Orr, Mackintosh, Smith, Tamblyn, Fessenden, Oliver, Strang, Purslow, Hunter, Tilley, Wightman, Shields, Parker, and Johnston.

The Section met again at 2.30.

The minutes of last session were read and confirmed.

Mr. Miller introduced the subject of the Relations of the University to the High Schools.

A lengthy discussion followed, in which most of the members present took part, and during which Mr. MacMurchy, the representative of the High School masters in the Senate, gave explanations on several points in regard to the proceedings in the Senate.

Finally the following resolutions were adopted:—

1. That the present regulations of the University Senate preventing candidates over twenty-three years of age from obtaining scholarships at the Junior Matriculation Examination should be amended.

2. That this Section would respectfully urge upon the Minister of Education the advisability, in the interest of the High Schools, of taking steps to give the High School masters additional representation in the Senate of the University of Toronto.

3. That in the opinion of this Section, before the Senate finally adopt any statutes or resolutions affecting the interests of the High Schools, they should authorize the Registrar to furnish the representative of the High School masters with such documents as he may deem necessary for obtaining thereon the opinion of the High School masters, or of such committee of them as they may appoint for that purpose.

Mr. Millar gave notice that at next meeting of the Section he would move that the regulation requiring attendance on lectures before receiving a degree in arts should not apply to Public School teachers and assistants in High Schools.

The Section then finally adjourned at 5.30 p.m.

PUBLIC SCHOOL INSPECTORS' SECTION.

Tuesday, Aug. 10, 1880.

The Section assembled at 10 a.m.

No business was transacted, the time being occupied by informal discussions on Inspection, Model Schools, and Recent Legislation.

Members present, Messrs. Agnew, Carson, Clapp, Dearness, Fotheringham, Hodgson, Hughes, Knight, Little, Maxwell, McKinnon, Mackintosh, Ross, Reazin, Scarlett, Somerset,—Mr. Mackintosh, Chairman; Mr. McKinnon, Secretary.

Wednesday, Aug. 11, 1880.

The Section met at 9 a.m.

Mr. Smith of Wentworth presented the report of the Committee appointed in 1879 to lay before the Minister of Education, the views of the Section with regard to proposed Legislation. This report was adopted.

Mr. Ross gave an address on "Methods of Public School Inspection."

Messrs. Ross, Scarlett, Carson, Maxwell, and Mackintosh, were appointed a Committee to prepare a draft form of Report to be sent by Public School Inspectors to Trustees.

Mr. Dearness introduced the subject of Recent School Legislation.

Messrs. Smith, Dearness, and McKinnon were appointed a Committee, to suggest amendments to the School Law, such as would to some extent remedy the injustice suffered by the smaller and weaker Sections of a Township under the present system of taxation for school purposes.

It was unanimously resolved, That in the opinion of this Section, gentlemen holding first-class, grade A, certificates should be eligible to the Head-masterships of High Schools.

The Section adjourned at 12 noon.

Thursday, Aug. 12, 1880.

The Section met at 9 a.m.

Mr. Ross presented the report of the Committee appointed to draw a draft form of Inspectors' Report to Trustees. This report, with amendments, was adopted with one dissenting voice, and Messrs. Ross and Carson requested to submit the draft to the Minister.

Messrs. Hughes, Fotheringham and Dearness were appointed the Legislative Committee of the Section.

Officers of the Section were appointed as follows:—Messrs. Hughes (Chairman), Maxwell (Secretary,) and Somerset, Mackintosh, Little, Dearness and MacMurchy, Executive Committee.

It was unanimously resolved, that in the opinion of this Section, no Public School Inspector's certificate should be granted to any person who has not passed the Professional

First-Class Examination, including successful practice in a Provincial Model School, and that no First-Class Provincial Certificate should be granted to any one who has not taught successfully for at least two years in a Public School in Ontario.

Mr. McKinnon presented the report of the Committee on Inequalities of Taxation in Rural School Sections, which recommended that the preamble, with clauses 1, 2, 3, 4 and 7 of a memorial addressed in January last by the County Council of Peel to the Minister of Education, should be generally endorsed by the Section, and that clause 4 should be particularly recommended to the attention of the Minister.

This report was unanimously adopted, and Mr. McKinnon was appointed to represent to the Minister the views of the Section on the question.

It was unanimously resolved, that in the opinion of this Section the half-yearly subscription to the Superannuated P. S. Teachers' Fund should be increased, that Public and High School Teachers, male and female, as well as School Inspectors, should be required to contribute; that no refund of subscriptions should be made, except in case of death, and that Teachers and Inspectors should be allowed to retire on the completion of a stated term of service. Messrs. Carson, Somerset and Smith were appointed to represent the views of the Section on this subject to the Minister.

It was resolved, that the examination of candidates for entrance to High Schools should be entrusted to the Boards of P. S. Examiners.

The Section adjourned at 12 noon.

PAPERS READ

BEFORE THE ONTARIO ASSOCIATION

FOR THE

ADVANCEMENT OF EDUCATION.

PRESIDENT'S ADDRESS.

We have under discussion a scheme for the changing of the Constitution of this Association, and I have thought it might be well to tell, in a brief manner, how the Teachers' Association of Canada West was commenced, and some of its proceedings.

The passing away of some of the Charter members—as those who were its first members may be called—requires that, if the facts are to be related, some one acquainted with the circumstances should relate them before all knowledge of them is forgotten. In the year 1860 I was appointed by the Teachers' Association of the North Riding of York as a delegate to the annual meeting of the American National Teachers' Association of the United States, held in Buffalo. On my return I brought before the Association of North York the need of a Provincial Association, and pointed out the benefits that might reasonably be expected to flow from the union of the teachers of Canada West in such an annual gathering. The Association of North York appointed a committee to bring the advisability of such a convention of teachers before the Profession. The committee having appointed Mr. Wm. Henry Irwin chairman, and Mr. R. Alexander secretary, issued a circular calling the attention of the teachers to the matter, and also requesting delegates to be sent to a preliminary meeting, to be held in the Court House in Toronto, on the 25th of January, 1861. In response to the call of the committee about 120 persons assembled to take the matter into deliberation. The meeting organized by electing the late Rev. Dr. Jennings chairman. The following resolution was passed unanimously: "That the interests of the Profession render it necessary that we form ourselves into a Teachers' Provincial Association." On motion it was agreed that the Association "shall be styled the Teachers' Association of Canada West." A Constitution was adopted subject to amendment by a majority vote of a meeting to be held in

Toronto in August. The preamble to the Constitution declared that the objects of the Association were : 1st, To secure the general adoption of the most approved systems of imparting instruction ; 2nd, To secure the improvement of our text books, or the adoption of others more suitable to the wants of the community ; 3rd, To enlarge the views of teachers and stimulate their exertions for the advancement and diffusion of knowledge ; 4th, To encourage the frequent interchange of ideas and kindly intercourse among the members of the Profession throughout the country. The first President of the Association was the late T. J. Robertson, Esq., M.A., Head Master of the Toronto Normal School, and the first meeting for the discussion of educational topics was held on August the 6th, 1861, in the city of Toronto, and continued for two days. In the absence of the President the first Vice-President, the late Mr. McCallum, of Hamilton, presided. The second President was the Rev. Dr. McCaul, of University College, Toronto, and the meeting for 1862 was held in Hamilton, but on account of the absence of the President the first Vice-President, Mr. McCallum, filled the chair. Allow me to quote two motions which were discussed at the Hamilton meeting, for the purpose of showing the subjects which then engaged the attention of the Association. The first is this : "That our Secretary be instructed to invite the attention of the Chief Superintendent of Education to the necessity of providing greater facility for school visiting on the part of teachers, requesting that not less than four days in the year may be placed at their disposal for that purpose, the particular days to be determined by the teachers and their employers."—Carried unanimously. The second, which was moved by Wm. Anderson, Esq., of Toronto, is as follows : "That this Association considers the provisions of the present School Act, in reference to the examination of teachers and the granting of certificates of qualification by County Boards of Public Instruction, have a tendency to lower the professional status of teachers, and retard the progress of common school education in the Province, by subjecting that large class of teachers not holding Provincial Normal School Certificates to repeated and unnecessary examinations, and that it is highly desirable that a Central Board of Examiners be appointed, with power, after due examination, to grant certificates of equal extent and duration with those granted by the Chief Superintendent of Education to students who have attended the Provincial Normal School." This motion, after a long and spirited debate, was voted down by a small majority. From the above motions it will be seen that this Association was, even at that early period of its life, anxious to bring the influence of the Profession to bear upon the authorities for the purpose of improving the School Law. The President for the next year was Dr. D. Wilson, of University College, Toronto, and by a resolution of the Hamilton meeting Kingston was to be the place for the next meeting. The annual meeting for

1863 was held in Toronto in consequence of the apparent apathy of the teachers of Kingston. In the absence of the President the first Vice-President, Mr. Lusk, presided. When the meeting was about to proceed to business on the first day it was found that there was not a quorum present. The gathering considered it best not to disperse, and proceeded to discuss the subject of Corporal Punishment. The business of the Association was begun on the following day, when the following subjects were discussed : Truancy, its Influence and Remedy ; Arithmetic as a School Study ; Compulsory Education. Prof. Wilson was re-elected President. The meeting of 1864 was held in Toronto, and the proceedings were commenced by the President delivering an address. This was the first time the President had filled the chair at the annual meeting. Among the subjects discussed were the following : "The fitness of the Irish National Series of School Books for the requirements of Canadian Schools ;" "The Examination of Teachers." On the latter subject the following motion was carried by a large majority, thereby showing the influence of discussion : "That in the opinion of this Convention it would be conducive to the interests of education were the system of granting certificates by County Boards abolished, and one Central Board having power to grant Provincial Certificates established, and likewise the present system of Local Superintendents superseded by the appointment of County Superintendents." Prof. Wilson was again re-elected President. Thus I have briefly gone over the acts of this Asssociation up to the meeting of 1865, the minutes of which were issued in pamphlet form in which, and the succeeding annual issues, are contained the proceedings of this Association from that to the present time. This is—including the preliminary meeting—the twenty-first meeting of this Association. During its life-time it has changed its name a number of times. In 1865 the Constitution of this Association was amended, and a new preamble adopted and the name of the Association changed, and it was styled "The Teachers' Association of Upper Canada." In 1867 the name was again changed, and it became the "Ontario Teachers' Association." In 1871 the "Ontario Teachers' Association" and the "Ontario Grammar School Masters' Association" were united under the name of the "Ontario Teachers' Association," and the work of the Association divided into three sections. In 1873 a further change was made in the name of the Association, and this time it received the title of the "Ontario Association for the Advancement of Education."

I have stated that about 120 persons were present at the preliminary meeting ; perhaps I should here say, that a large number of students, who were then in attendance at the Norman School, attended the preliminary meeting and thus contributed to the success of the meeting. Those who remember the Association in its early days, will easily recall the concern of many in regard to its usefulness and life. Some very anxious friends were afraid that it would receive harm from having so many Normal School trained teachers among its friends and supporters, while on the other hand, many among the Normalites were very nervous about its future because of its friends being so numerous among the County Board teachers. Notwithstanding the apprehensions of its many friends, it has grown to be a strong and independent Association. It pursued such a steady, straightforward course that very soon all reasonable persons were convinced that it aimed at being the honest exponent of the Profession on matters educational. The influence that it has exerted, the good that it has accomplished, and the reforms that it has commenced and helped to carry to completion, during the twenty years of its existence, are, I hope, but an earnest of its future in the work of stimulating and aiding the cause of education.

I will now ask your attention, for a short time, to some matters connected with the work of the school-room.

Addison, in the *Spectator*, says: "I consider a human soul without education like marble in the quarry, which shows none of its inherent beauties till the skill of the polisher fetches out the colours, makes the surface shine, and discovers every ornamental cloud, spot, and vein that runs through the body of it. Education, after the same manner, when it works upon a noble mind, draws out to view every latent virtue and perfection, which without such helps are never able to make their appearance.

"If my reader will give me leave to change the allusion so soon upon him, I shall make use of the same instance to illustrate the force of education, which Aristotle has brought to explain his doctrine of substantial forms, when he tells us that a statue lies hid in a block of marble; and that the art of the statuary only clears away the superfluous matter, and removes the rubbish. The figure is in the stone: the sculptor only finds it. What sculpture is to a block of marble, education is to a human soul. The philosopher, the saint or the hero, the wise, the good or the great man, very often lie hid and concealed in a plebian, which a proper education might have brought to light."

In the above extract there are two words that would challenge attention from any reader, but more especially the attention of a teacher. I refer to the words *proper education*. I ask your forbearance for a short time while I direct attention to one point, in which I think our practice is not in accordance with the science or theory of education. The first period of school life should be so arranged that it would make the change from home life to school life easy. There should be no unnatural and violent changes. The child's curiosity which has been so potent in its education in the home, should be the teacher's ally in the primary course of the child's training. Can the freedom of the home life, with its many questions, be allowed any place in the work of the school? I think it can, and not only that it can, but that a large part of the first year or two of the work in the school ought—so long as children come to school at the age of five—to be much more free from unnatural restraint than we now make it. I think we greatly retard the child's education by the unnecessary break that we make between home and school life. Think of what the child's life was before he entered the school ; remember the liberty of motion he enjoyed, the freedom to handle and examine the things that came within his reach or observation. Remember how persistent in asking questions about the thousand and one things seen by him in the world of nature. Think, on the other hand, of the ordinary school session of two or three hours each forenoon and afternoon, with the—to him—unusual restraint, of the school, compelled to remain for a length of time in one position, forced to be silent, required to attend to lessons, that, to him, are unmeaning and dreary. Think of him, with nothing but a first book or slate allowed him, with which to break the tedium or relieve the dulness of the session after his short lesson. How irksome and monotonous must such a life be to a child. If such be the proper education for primary classes, then the theory of education as expounded by eminent writers on education, is at fault. Pestalozzi says :—"Nature develops all the human faculties by practice, and their growth depends on their exercise." "The circle of knowledge commences close around a man, and thence extends concentrically." "Force not the faculties of children into the remote paths of knowledge until they have gained strength by exercise on things that are near them." "There is in nature an order and march of development. If you disturb or interfere with it, you mar the peace and harmony of the mind. And this you do, if, before you have formed the mind by the progressive knowledge of the realities of life, you fling it into the labyrinth of words, and make them the bases of development." "The artificial march of the ordinary school, anticipating the order of nature, which proceeds without anxiety and without haste, inverts this order by placing words first, and thus secures a deceitful appearance of success at the expense of natural and safe development."

It is an undoubted fact that childhood is specially marked by the activity of the perceptive faculties and through them, mainly, we should attempt the child's early education. Why not at least make of nature a helpmate, if we will not consent to be wholly guided by it in the early stages of the child's education? Why not give the pupil more time in the playground for physical development, and while there encourage him to continue his former acquaintance with the natural world? Why not have in the school-room a sufficient number of objects calculated to arouse his curiosity, to fix his attention, to call forth his observation, and enlarge his knowledge? Why shut the child up in a school-room, without a single thing in it, purposely designed to arrest his attention, or to gratify a single sense. Are not the majority of our school-rooms dingy and dreary? Are not the younger scholars compelled to spend long hours in looking at, or trying to print the letters of their lessons?

How much more natural and real would primary education be if it consisted in some well considered system that would aim specially at the exercise and development of the perceptive faculties. How may this be done? By allowing the child to have access to those things that will call into exercise his senses. Think how effectually and pleasantly form, colour, and number may be taught through almost any natural object, notably a flower, a bird, or an insect. The handling of such objects leads to expression both by voice and hand; how natural to talk about the object handled, and attempt to sketch it. The step from observing to comparing and grouping, or classifying, is easy. That pupils who have had exercises adapted to develop the perceptive faculties are better fitted, thereby, for subsequent study, is evidenced by the more rapid progress made by ex-kindergarten pupils than that made by non-kindergarten pupils. Hear what the teachers of St. Louis say:—"The average intelligence of the kindergarten pupils is greatly superior to that of children who enter school without previous training. They observe accurately, seize ideas rapidly and definitely, illustrate readily, and work independently. Thus far the promoted pupils of the kindergarten have led every class into which they have been received. In addition to superior general development, the kindergarten children show special aptitude for arithmetic, drawing, and natural science, have quick comprehension of language, and express their own ideas with accuracy and fluency." In the majority of our schools, I am afraid that the system adopted has the effect of producing inertness, by the repression of the child's love of change: apathy, by repressing his natural curiosity; and dulness, from want of proper training of the senses. The point to which I wish to direct attention is this, that the teacher of the primary class in school should strive to make the change from home life to school life gradual, that the desire, which is in all young children, to become acquainted with the things with which they are surrounded, should be utilized in the school-room, and for a definite end. I think that if a large part of the child's first year or two in a school were employed in training the perceptive powers, he would be greatly benefited, and would advance more rapidly in all his after school life.

The moral training which may be given through such a method of elementary education is a feature that is a strong recommendation in its favour, but on which I shall not at present say anything.

We may ask what should the teacher aim at as the result of his work upon the minds of his pupils? He should aim at producing, as one of the results of his work, pupils with such a knowledge of English as would make reading a pleasure and an efficient instrument of improvement and refinement. Another of the results of his work should be to develop a manly character—to impart such views of life, its responsibilities and duties, as would help to form his pupils into generous and virtuous citizens. You will notice that I have mentioned, of the many things to be attended to by the teacher, two only, viz., a knowledge of English and formation of character.

In reference to a knowledge of our mother-tongue, I think we do not give it that prominence which it deserves—we do not devote enough of time to it. It does not occupy the first place in Public School work. This in part may be due to the influence of the Limit Table issued by the school authorities. In June, 1871, there was issued by the authorities a Limit Table with the amount of time to be devoted, per week, to each subject on the Public School Programme of Studies. Allow me to quote from the time table then issued. I quote the time allowed per week for the fifth and sixth classes, which classes read in the Fourth and Fifth Books, respectively, and would nearly correspond with the present fourth and fifth classes ; the time for Reading, 2½ hours ; for Arithmetic, 3 hours ; for Grammar, 2 hours ; for Algebra, 2 hours ; for Composition, 1 hour ; for Geometry, 1½ hours. I think, that in the Limit Table at least, a knowledge of English is made to appear less important than a knowledge of mathematics.

I am aware that it is not necessary now for the teacher to confine himself in teaching any subject to the time set apart for it in the Limit Table—I am aware that it is not now obligatory to conform to the Limit Table in the division of time to the respective classes. But as it is the only table of the kind ever issued by the Department for the guidance of teachers, it has influenced teachers, and that influence, I think, has placed the study of English as less important than that of mathematics. As to which of the two studies—English or mathematics—has the greater practical value for the pupils of our Public Schools, I have no hesitation in saying that English is by far the more important of the two. But it may be said that for the mental discipline that the mathematics give they are entitled to the first place. In reply to such a claim Mr. E. L. Youmans says that the advocates of mathematics "make extravagent claims for mathematics, on the ground of the discipline they afford, and then usurp for them an educational predominance to which they are not entitled. In their subordinate place they are invaluable ; as a too engrossing subject of study, injurious." Now my acquaintance with, and observation of the work done in our Public Schools lead to the opinion that we give less attention to the study of English than we do to mathematics. Before English becomes, as it should, the main study in our Public Schools, we must have better books from which to teach it, as well as giving more time to it. In place of the Fifth Reader we require some book or books that will arrest the attention of the pupils and beget in them a love for the study of good English. What would you substitute for the present book? The question would doubtless not be answered by all in same manner. I will quote Professor Seely on that point: "The selection of the series of writers to be read in the classes is an important question. You would naturally begin with what is most attractive to young boys, such as Macaulay's 'Lays,' Kingsley's 'Heroes,' Scott's 'Poems' and 'Tales of a Grandfather.' To give our pupils an opportunity to read with care some good English author with the view that they may become thoroughly acquainted with what they read, and thereby develop thought and taste, that they may become acquainted with some masterpiece of English, so that their style of writing may thereby be improved, is a thing much to be desired."

When we remember that there are over 19,000 pupils of the Public Schools who are in the fifth and sixth classes, and that there are more than 20,000 Public School pupils over seventeen years of age, the importance of such a study of English as would impart a desire and relish for reading the standard English authors, becomes very apparent. The importance of it, viewed from a national standpoint, is not easy to overestimate. In a country like ours, where so much depends on the intelligence of the public, anything that would tend to make the people a reading and thoughtful community should be attempted. Professor Young said some years ago: "I will call no English education decent which dismisses grown boys and girls from school unable to read ordinary English authors intelligently." President Eliot, of Harvard College, says: "I may avow, as the result of my reading and observation in the matter of education, that I recognize but one mental acquisition as an essential part of the education of a lady or a gentleman—namely, an accurate and refined use of the mother tongue. Greek, Latin, French, German, mathematics, natural and physical science, metaphysics, history and æsthetics, are all profitable and delightful, both as training and as acquisitions, to him who studies them with intelligence and love, but not one of them has the least claim to be called an acquisition essential to a liberal education, or an essential part of a sound training."

I would like to see more time given to the study of English in our Public Schools. I would like to see English more studied because it can be made an instrument of training as well as a channel of information. I would like to see English receive more attention in our Public Schools because it would tend to form a habit and taste that would be beneficial in after life.

We will all agree that the moral nature of our pupils should receive attention as well as the intellectual and physical. But there seems to be a difference of opinion in regard to the method of training the moral powers. Some entertain the opinion that example joined to the ordinary discipline of the school will suffice. Others entertain the opinion that instruction in moral duties is required. I entertain the latter opinion. It is true that the discipline of a well-ordered school will teach the value of order and method, of industry and a judicious use of time, of resolution and perseverance. These, and other personal habits and qualities may be acquired through the discipline of a good school. But the higher moral duties of sympathy, honesty, integrity, truthfulness and the like should be pressed on the attention of the pupils through kindly and friendly talks. If something in the lessons, or some circumstance in the school or neighbourhood suggests the topic, well and good ; but if nothing like that occurs, the matter is of such paramount importance as to deserve attention. I do not speak of this matter because I think there is any marked decline in the morality of our pupils, but because I think we do not discuss how to teach morals as frequently as we should. I think the subject should have more attention at our county associations than it has had.

The teachers of Ontario rank high, morally and intellectually, and while one, here and there, may not be fully alive to the claims of moral training, I am convinced that the great majority are working faithfully to train up a race that shall reflect credit on their teachers, and honour on their country, by obeying the injunction, "Fear God. Honour the king."

THE NATURAL SCIENCES IN THE PUBLIC SCHOOLS.

BY MR. DAVID BOYLE, HEAD MASTER, ELORA PUBLIC SCHOOL.

Mr. President, Ladies and Gentlemen,—

Cast as our lot has been, in this Province, at a time when it behoves pupils and teachers of every rank and condition to fall upon their knees before the chief mathematical deity, and cry out, Great is the Idea of Officials ; at a time when a teacher, to be a teacher worthy of the name, must regard it as a sacred duty to be able to tell just how many x's it takes to make a y; how fast one train, so many feet long, is going in one direction when it passes another train, twice or half the same length, going the opposite way, or the same way, at such and such a rate; or when the hands of an eight-day clock, or a stem-winding watch, will next be together, or at right angles, or in some other position, having been so-and-so at a given time to start with ; as well as scores of similar problems equally interesting, instructive and athletic ; at a time when a boy is not much of a boy, and a girl no girl at all, who fail to make their mark, or rather their marks on a High School Entrance Arithmetic Paper, although this deficiency may be fully compensated by the ability to read, write and spell well, having at the same time a fair knowledge of other branches usually taught in a Public School; at a time, when in fact, one doesn't need to know the specific differences between a cat and a cat-fish, or a sunflower and an ear of corn, provided always he can solve some crooked combination of figures by the unitary or any other method, but especially by the unitary method; at a time when the *Great Eastern* might easily be supplied with a cargo of the discarded Algebraic and Arithmetical Manuals, of which every house in Ontario can supply from half-a-dozen to a score, the cry being, "still they come"—at such a time it will, to many, appear little short of the rankest heresy, if one should dare to ask, even in the meekest manner possible under the circumstances, whether this sort of thing has not gone far enough for the present, and whether there is not some other means of mental discipline, nearly, if not quite as good as that which has been for so many years on the card.

From the half-ludicrous style in which the case has been opened, the thought may occur to you that the object of this paper is to decry the study of mathematics in its widest sense, and, correspondingly to laud the physical sciences. Such is *not* the intention, and he who would attempt to follow this line of argument would only lay himself open to the severest censure of every right-thinking member of the Association. To do so would, in fact, be to pursue a course exactly similar to that which it is the intention of these remarks to condemn.

Were examination papers, either for teachers or pupils so arranged as to demand a highly philosophical knowledge of the structure of the English language, or an ability to spell every one of its fearfully and wonderfully constructed words; were they so arranged as to require a perfect intimacy with universal history and geography; were they compiled in such a way as to prove the most extensive acquirements in the arts of elocution, penmanship, drawing, or music; or were they presented in a form insisting upon the minutiæ of biological information, we should still feel warranted in entering a protest against the system.

Our charge is, not that there is too much mathematics, but that too much is made to depend upon it, to the exclusion of other, and to the minds of some people, equally important subjects.

On the same principle, it might be said that there is not too great a knowledge of orthography demanded at examinations of all kinds, but that too much is made to depend upon it.

What is pleaded for in this paper is a rational and liberal Public School education (and by the term Public School, in its largest sense, may be included High Schools), an education that will aim at cultivating the *whole* mind, at giving scope to all the faculties, at really and truly opening our eyes; and herein lies our plea for saying a word or two in favour of teaching physical science.

If it be granted, and surely few will deny it, that no particular faculty of the mind should be *forced* without some very definite object in view, and if it be also granted that only that system of education is a correct one which insists upon a proper use of man's observing powers —the ability to use his eyes and ears aright—the way is quite clear for what follows.

But these are principles whose truth is not regarded as axiomatic, or, if so, only to such a limited extent as to render it quite possible (or convenient) for them wholly to be ignored.

That the mathematical athlete and the orthographical gymnast have, under certain conditions, enormous advantages over others not so gifted, is only a fact of the baldest, and most self-evident kind, but, we demur to the proposition that such attainments are a prime necessity for every one to possess. Granting, however, that everybody should have an opportunity to follow the bent of his inclination in this, or any department of a practical education, the question arises, should we close to the student other avenues by means of which the same object may be attained, viz., the laying down of a broad platform, upon which all may erect, at the least possible expenditure of time and trouble, the superstructure of what is understood to be, in this work-a-day era, a truly *liberal education.*

Whilst freely acknowledging that much may be done by means of application, in the way of removing innate poverty of ability to pursue successfully this or that particular line of study, it is, ladies and gentlemen, one of the most notorious facts to every one of us, that there are pupils whose capacity forbids that they shall ever shine in some one or more branches, whilst, they at the same time exhibit unusual aptitude for something else. The truth of the matter is that not one of us is perfectly balanced, and any attempt to make us all take the very same course of study, is just a means of preventing us from following some other course. If I am resolved to leave this city for Montreal, I may refuse to go by the boat because I am in dread of shooting the rapids, or am solicitous regarding my stomach ; but that is no reason at all why I should be precluded from performing my journey by rail.

Now, we learn from various sources, more particularly from Galton's works on hereditary instinct and talent, that a large number of those whose names are well known in the scientific world, only became conscious of their own proclivities by means of some simple incident, or only took to the study of a given "ology" owing to their attention being directed to it in a purely adventitious manner. What is wanted then, in our schools to-day, is an opportunity for every boy and every girl to find out and follow that for which they find themselves best qualified, not, by any means, to the total exclusion of what they may happen to dislike, and which may, no doubt, be of very great value to them at the same time. To a certain extent this has been done, but done in such a way as *not* to demand unqualified praise, in the existing system of options. The options do not at present permit of a student taking any biological study in lieu of something else. Chemistry is the nearest approach to what is wanted.

When the new school law came into force, special certificates were granted to those who passed an examination in chemistry, botany, and natural history. More recently it would appear that this plan has been dropped, so that with the exception of the first named study, very little, indeed, is demanded.

In the advocacy of teaching physical science in our Public and High Schools, two difficulties always present themselves : first, the finding of those properly qualified to teach it, and second, the time to do it in. So far as the former difficulty is concerned, that it must continue to exist will appear evident to all, when it is considered what scant measure of attention is meted out to the subject by those who have the power either to make or to mar our schools, and therefore our country, for at least a generation.

There is nothing like so much trouble now in getting intelligent teachers of grammar and arithmetic as there was twenty, fifteen, or even ten years ago. You all know why. With properly directed efforts the existing difficulty, would in like manner, cease. But, then, there is the time. Most of us are already growling about having too many subjects. In rural schools, where only one teacher is employed, a dozen or a score of classes daily are found to require every moment at the teacher's disposal. In urban schools so much depends upon promotion, entrance, and intermediate examinations that only what is authoritative stands any chance of even a passing notice. How then is the thing to be done ? Let us take rural schools first, and schools in the smaller villages. In such places, were the teacher properly qualified, nothing is easier than to imbue the minds of pupils with a love for nature and natural objects. Perhaps there is hardly a school of this character in the Province that does not fritter away half-an-hour or an hour every Friday in a spelling-match or some other unprofitable way. Just here there is a capital opportunity for a natural history object-lesson. Let it be distinctly understood, that if you begin with book dissertations on the history of your science, its aims and its uses, and long-winded stories about men who have signalized themselves in its pursuit, ten to one you will only succeed in disgusting those whom you set out intending to divert, interest, and teach to think. Butterflies and bees, frogs and snakes, rats and mice form splendid texts, and every one of them is easily procurable. Mulleins and thistles, burrs and dandelions, and the common trees in the nearest woods, may be made to yield abundant material throughout a whole season.

In quarries, field-stones, and gravel-pits, some of the long extinct ancestors of our present fauna and flora may be found beautifully preserved, awaiting only the arrival of the youthful student to be picked up and asked to tell their silent tale. Short excursions once or twice a month in search of objects for the next few lessons always yield unspeakable pleasures both to teachers and taught. That, by-and-by, the taught will ask questions beyond the depth of the teacher, is not only what to expect, but is just what to wish for. In reality, when this point is reached one of the chief objects has been gained.

Let no teacher in such a case either pretend he knows, and yield to the temptation to give a doubtful reply, or feel ashamed to confess his ignorance, but rather express a desire to find out the truth. After a very little while it will be found that organized searching parties will be useless. Every one who has become interested (but that will not be every one in the school) will carry on an independent quest, so that your desk will be crowded with snail-shells, cocoons, insects, plants, pebbles, and fossils, as the auctioneer's advertisements used to say, "too numerous to mention." Amid these gatherings many specimens will undoubtedly turn up that even the University of this or any city would be glad to possess. Small cabinets then should be formed for the preservation of these. The teacher himself should make a collection, another ought to be the property of the school, and the pupils might be encouraged to form small ones for themselves.

In the larger villages and in towns, even, much can be done in an exactly similar way. Besides this, in many places the trustees might be sufficiently interested to make a small grant annually for the purpose of providing cases, and purchasing specimens not to be had otherwise. In places like these too, owing to the comparatively short distances the pupils have to travel, as well as for other reasons, a little extra time might occasionally be devoted to the work. So far as the method to be employed by the teacher goes, pretty much the same remarks will apply as in the case of rural schools, with this difference however, that where there is a good library in the place, the pupils' attention should from time to time be directed to biographies or books of travel calculated to throw light upon, or lend interest to, a subject, the teacher himself and the more advanced scholars referring now and again to technical treatises. In High Schools, as a matter of course, the opportunities for teaching physical science are, or should be, quite superior in their character. According to Prof. Huxley, and there is no better authority living or dead, about two hours a week would suffice to cover a great deal of elementary ground, and enable pupils to leave school with at least a moderate appreciation of the Shakespearean aphorism, that, "One touch of nature makes the whole world kin."

In all classes of schools, the teacher, in consideration of the training he ought to have received, should be so thoroughly saturated with physical science facts and theories, that he might be able to do a great deal in the way of incidental teaching. Reading and spelling lessons, as well as lessons in political and physical geography, and even history, frequently afford excellent opportunities for directing attention to the subject.

In some city High Schools a natural science master is employed, and there, let us hope, things are as they ought to be ; but what of the thousands who complete their course in the Public Schools, and whose only chance of picking up knowledge of the kind in question is confined to an observation of the domestic animals, a few insects (also domestic), with an occasional visit to some travelling so-called menagerie, perhaps to but a hurried and excited view of the street pageant, or a covert peep at the elephant's feet, under the tent canvas. So far as geology and ornithology are concerned his opportunities are almost *nil*, and *nil*, most probably, will be all his future knowledge of these interesting and highly valuable studies. In spite of these drawbacks, however, cities in many other respects present some peculiar advantages, chief among which may be named first, wealth, and second, more advanced ideas on education generally. The possession of these, with a desire that physical science *shall* be taught, is all that is necessary to have it well taught.

Writing masters, music teachers, and drill instructors, are frequently employed—why not science masters? It would be easy to cite one authority after another for hours in favour of introducing the teaching of Natural Science into our schools, but as most of these authorities are themselves physico-scientists their evidence may be regarded as *ex parte.* Let me, however, give you a very brief but very pointed sentence from the pen of one who never writes unless when he has something to say that is worth saying—of one who never wearies in his denunciation of sham—of him who is the greatest apostle of work that the world has ever seen—Thomas Carlyle. And here is what he says : "For many years it has been one of my constant regrets that no schoolmaster of mine had a knowledge of natural history, so far at least as to have taught me the grasses that grow by the wayside, and the little winged and wingless neighbours that are continually meeting me with a salutation that I cannot answer as things are."

Let us conclude this paper with what had perhaps been better said at the beginning of it, a few words as to the use of the teaching advocated. As a means of mental discipline, the study of physical science covers ground not otherwise occupied. It would be quite useless for me to take up the time of this Association with a mere repetition of what has been so often said, and said so very much better than I can ever hope to do, of its immense value in the development and cultivation of the observing faculties ; but let me point out to you what many have, no doubt, noticed for themselves, that the great majority of those who exhibit a fondness for the pursuit of *natural* science seldom manifest much love for mathematics. Now, to my mind, this simply proves, with some qualification, the truth of the old adage that "what is one man's meat is another man's poison;" in other words that there are two great classes into which the human family may be divided, viz., those with a bent in the direction of mathematics, and those whose inclination is towards physics. If this be granted, and it will be difficult successfully to gainsay it, let us ask the question, What resource do we leave those who have little or no mathematical talent? Is a man to be regarded as being in a state of mental vagabondage because he could never find his way over the "ass's bridge?" Are we to furnish our fellow-beings with no means of enjoying the sight of a grand old tree or a sheet of water apart from the ability to compute the solid contents of these objects? Must we condemn thousands to go on wondering ignorantly how it is that this stone contains a fossil, and that that boulder lies on the hill top? Shall we continue to send out pupils from our rural schools without one ray of light to illumine the total darkness that envelops them in regard to all the birds, and all the insects, and all the plants that surround them, in the woods, the fields, and the wayside? And yet this, ladies and gentlemen, is just what we are doing every day.

You all know, for you have heard it a hundred times, the cry which has been set up in more quarters than one, to the effect that we are over-educating young Canada, and that the result of this over-education is the swarming of our youth (and shall I say our beauty?) to the cities and the towns. So long as the present course of study is followed out no other result need be looked for. We *are* over-educating in the sense that what we teach is too commercial and too pseudo-literary in all its tendencies. Give a farmer's son a thorough drill in geometry, algebra, arithmetic and book-keeping, and ten chances to one the inevitable conclusion of all his day-dreams will be, that nature has intended him for something better than a farm-drudge, and that henceforth he must see about getting possession of a country grocery and post office, or find some sort of a clerkship in town, whence he may ultimately make his way to the Finance-ministership of the Dominion, or at the very least to becoming managing director of some bank, or proprietor of a large wholesale house How can it be otherwise? Here is a boy, say sixteen years of age, surrounded by natural objects of every kind, and who has not probably ever heard one word to give him any interest in them, beyond his father's orders to do this or that piece of work on the farm, and this, we know, is not the sort of talk that delights the youthful ear. The course of education he has been put through, laid special stress upon the value of certain goods consigned from Liverpool to Montreal or Toronto, the interest and discount on given sums of money, the percentage chargeable on certain bills of exchange, etc., etc., all quite proper, no doubt, and what every young man should know, but it stopped there, and stopping there it resembled "My Grandfather's Clock"—it stopped short. To remedy the evil, an Agricultural School and Technological College have been established, where a great deal of the desirable kind of teaching is done, but how few comparatively of the young folk belonging to this Province can ever hope to avail themselves of these advantages. We want every country school in Ontario to be in some sort a physical science school, by means of which pupils may be imbued with such a love of nature in all its aspects that the city would present few charms in comparison, and we want the town and city schools to do their share towards inciting their young men to "go up and possess the land."

But there is another reason, also economic in its character, why we should devote more attention to the study of physical science. We live in a great country with a climate ranging from almost sub-tropical to purely arctic, and having within its boundaries some of the richest mineral deposits to be found anywhere in the whole world. We have coal and gold at both the eastern and western extremities, iron, copper, and lead at intervals everywhere, and various kinds of limestone (including marble and lithographic stone), besides roofing-slate, plumbago and large quantities of phosphates. Why should not every pupil be taught to recognize these and many more at sight, or by some simple chemical test when necessary? Would not such knowledge be at least as valuable as knowing the position of Kilimandjaro, Tobolsk, or Timbuctoo? We have an immense variety and quantity of timber, from the stately Douglas pine of British Columbia to the scraggy oak and stinted juniper of Labrador. Is there any reason at all why every Canadian boy and girl should not be able to distinguish our principal trees by name from a glance at the leaf, the bark, or the wood itself? Or is there any reason why they should not be able to tell where these trees grow?

Our permanent and migratory birds and insects also vary very much as we proceed in any direction; how much, or rather how little, is generally known regarding them? The same may be said of other creatures, and of our plants. The fact of the matter is, that for all practical purposes, so far as our knowledge of these things is concerned, most of us might just as well live in some other country altogether. We really don't know our neighbours, and what is worse, we are quite well satisfied not to know them. Not only so, but we are indoctinating the youth of the country in such a manner that they shall not know any more than we do ourselves.

Now, one of the beauties of physical science is its progressive character. Its student never ceases learning. He can't sit down and say, "It is done." Onward and upward he must go in spite of himself. It is also experimental. Its disciple is therefore frequently thrown upon his own resources. When one method of unlocking a secret fails, he must try another. If according to Dr. Erasmus Darwin, "A fool is he who never tried an experiment," to how many of us does the definition apply? It is ennobling too. Only the natural scientist can exclaim intelligently, "Great and manifold are Thy works!" Neither is the liberal tendency of the study its least merit. The true student of nature learns to look beyond the narrow limits of time, country and creed; to regard every man as a brother, and if he be an evolutionist, as most are, to look upon the whole animate creation, in the words of "Pinafore," as "His sisters, and his cousins, and his aunts."

Scant as is the notice this study has received at the hands of our educational authorities, we find it making rapid headway in the mother countries, notably in Germany and our own Britain. It is almost impossible now-a-days to read a newspaper, or even a novel, without stumbling across some allusion to biological research. The press is pouring forth every year thousands of works having a direct bearing upon physical science, which has only succeeded, during the life-time of every one here to-day, in taking its proper place in the fore-front of those subjects that occupy the attention of intelligent men.

As a matter then of self-protection, or self-preservation, as teachers, we should see, in such a case, that we are not left behind. Even on the ground of being fashionable (and probably this will appeal to the feelings of the ladies), it is our duty to pay some attention to what all the rest of the world is talking about, to provide ourselves against being compelled to sit in any company "mute, inglorious," and abashed listeners to conversation beyond our depth; conversation which, from the position we hold, it ought to be our privilege to lead. In the meantime, and until we prepare ourselves in this as thoroughly as the law compels us to do in other things, we must just go on like educational quacks, administering to our juvenile patients doses of arithmetical astringents, and grammatical cathartics, utterly oblivious of the inherent curative properties possessed by Dame Nature, the mother of us all.

From the point of view assumed in this paper, it must appear evident how wofully deficient all our text-books are. They are as well adapted in almost every respect for Great Britain as they are for this "Canada of ours." That these books have the commercial tendency already complained of, a momentary glance will show.

Our cousins in Newfoundland are wiser than we in such matters. In the geography of that island for the use of schools, published in 1877, by Mr. Jas. P. Howley, out of the 70 pages the book contains, 30 pages are devoted to brief but concise descriptions of the climate, soil, timber, metals, minerals, mammals, birds, fishes and insects. There is nothing like this, so far as I am aware, in the whole of our series. We are afforded texts in immense variety, and behests to make use of them, for the analysis of complex sentences, and the parsing of oddly applied words ; we are commanded to teach the locality of every place of any importance, and many places of no importance, all over the world ; the solution of algebraic and arithmetical problems is understood to be one of our chief objects, but the idea of saying one word about the natural objects on all sides of us, seems never to have entered the minds of "our masters."

Ontario is now, and must always remain, above all things an agricultural country, and what strikes me most forcibly as the great educational problem for us to solve is just how best to utilize our schools for the purpose of familiarizing the young with all that appertains to the farm. Of course, agriculture is not natural science, but it is so nearly akin that its teaching necessarily involves much of botany, much of entomology, a good deal of zoology, and something of geology, besides a fair knowledge of chemistry. So far, then, as the purpose in view is concerned, it is quite immaterial by what name we call the study ; the object will be attained whether we designate it agriculture, and give our pupils the "reason why" as just indicated, or, natural science, keeping in mind its practical application on the farm.

Since this paper was begun, my eye caught a short paragraph in the educational column of the *Globe* for Wednesday, the 16th ult., in these words : "The French Government has ordered that a course of teaching in agriculture be introduced into every primary school in the country." Here is wisdom. One might have supposed that France, occupying the high position she does, as one of the first manufacturing and mercantile nations in the world, would rather have directed the energies of her teachers in some other direction. But, no ; recognizing the claims of natural science, and fully appreciating the value of the services it has already rendered, not within her own boundaries alone, but conterminous with those of civilization itself, her legislators determine that the youth of the land shall be so taught as to give them an intelligent grasp of such knowledge as will tend to foster an affection for the pursuit of agriculture, and increase the productiveness of the soil.

Now, that the Grangers have fleshed their swords successfully, although not to the death, as was their desire, in their attack upon the Provincial Parliament to secure shorter school vacations, they might not deem it beneath their dignity once more to make an onslaught for the purpose of compelling somebody to do something in the way of teaching the "young (agricultural) idea how to shoot." That they will not take any action in this direction will appear evident from the consideration of the one and great reason, that by so doing they would confine themselves too purely to minding their own business.

It has been attempted to show in this paper, then, if a few moments may be allowed to summarize : That the over-education cry is true, only in the sense that what is taught has too much of a commercial and narrow literary tendency; that to this tendency is due the rush of so many young men to the large centres of population in search of what, looking at their scholastic training, they regard as the most congenial occupations; that it is possible for the schools to do as much towards counteracting the tendency in question as they now do towards its encouragement; that a course of physical science from the primary to the higher schools, would be likely, in a great measure, to fulfil the purpose in view, by directing attention to the natural resources and capabilities of the Province; that this may easily be effected by the demand for more knowledge of the requisite kind, and, perhaps, less of some other sort; and that the study of physical science is, as a means of mental discipline, fully the equivalent of any other course, generally, and, so far as Ontario is concerned, likely to prove of more than usual practical utility. Any fear that the ranks of commercial and professional life might, by pursuing this course, become depleted, is perfectly groundless. Natural selection, outside of any aid extended to it by artificial means, will always enable the right man to find the right place. The round man in the square hole, or *vice versa*, would be a thing of far rarer occurrence than it is to-day, and the number, who, as at present, have so much difficulty in meeting with any sort of a hole at all that they are qualified to fill, materially diminished.

Let us, at the very least, in all our teaching, try to impress upon the youth of this land, in whatever relates to its immense physical resources and great natural beauties, that ignorance is *not* bliss, and that it is *not* folly to be wise.

PROFESSIONAL EXAMINATIONS IN COUNTY MODEL SCHOOLS.

MR. JOHN DEARNESS, I. P. S., EAST MIDDLESEX.

IN the preliminary discussion of my subject, "The Professional Examination of Teachers," at the meeting of the Directors, the only limitation or suggestion proposed was that I should consider the causes and effects of the large annual increase in the number of teachers, and how this increase could be checked in case it were shown to be an evil. This point I shall notice but briefly for two reasons: first, it is my intention to consider, not how to diminish or limit the number of teachers, but how to improve their efficiency; second, the over-crowding of the profession is the subject of a paper to be read before the Section of this Association which it specially affects. It is unquestionable that there is loss to the country when the number of persons annually added to the class of certificated teachers is much in excess of the number retiring voluntarily from the profession; for, besides reducing the salary and thereby reducing the respectability and influence of the teaching classes, this cause drives out the most energetic and experienced teachers, leaving the schools in the hands of young or unenterprising men. I have in my mind a case, and there are many similar, in which an inexperienced young lady supplanted her teacher, a tried and successful second class man, because she was willing to teach for $150 a year less salary. The annual increase in the number of teachers for the six years preceding the establishment of County Model Schools was 1,782. It is observed that beginners rarely fail to secure schools, being willing to accept almost any remuneration; hence, since there are positions in the Province for only 6,400 teachers, and under the present system the annual increase may be approximated at about 1,600, it may be safely inferred that in about four years nearly all the teachers at present employed will have to leave their schools, if for no other reason than to make way for the novices. Fair remuneration for their services, with half the increase in the number of teachers would prove more advantageous in every way to the educational interests of the country. However, let us not view with dismay the magnitude of the army of aspirants seeking admission to the teaching profession, but rather, approving their choice, depend on and require those whose duty it is to certificate them under judicious legislation to give the country sufficient supply of the best material. Good men need not fear honourable competition. The system as in operation at present is not sufficiently eclectic as regards certification. The work of preparing and qualifying persons to be teachers is very differently done in different Model Schools, and to these we have to look exclusively for our new material. I have found by questioning teachers who apply, which they must do personally, for endorsation of their certificates, that some have had their teaching criticised for their benefit after every lesson they taught in the Model School, others say their mistakes in teaching were seldom or never pointed out to them; some have seen no organization other than is afforded by the Graded School in which the Model School is established, others have seen classes selected from the various rooms, organized and taught like an ordinary rural school; some have been taught that the first-book classes should receive only two lessons daily, others that they need four at least—six or more if possible. Model School masters complain justly that the time allowed them is too short to prepare beginners to practise the difficult art of teaching. Seven weeks is a truly short apprenticeship to train youths of seventeen or eighteen years to become doctors of the mind. It takes the University of Philadelphia, except in special cases, as long as that to make a man a doctor of medicine, who usually pretends to treat only the casket in which the mind is set. Some of the Model School masters complain, too, of the imperfect preparation of the candidates at the time of their entrance on the practical training work, mentioning particularly incorrect pronunciation, bad reading, ungrammatical conversation, general superficiality. I assert without fear of contradiction in the face of facts I can adduce, that passing the intermediate examination does not prove a sufficient criterion of the literary qualifications of the would-be teacher. It is not uncommon that candidates who write, in the same month, on both the third and second class examinations pass the latter and fail on the former. One such last year with us made only five per cent. on his third class arithmetic paper. At our Model School examination before the last, only one teacher-in-training in the whole class, comprising several "Intermediates," corrected, even after repeated trials, a sentence that had been used by one of the examinees. The sentence was "Let every one of you try *and* see *if you* can do it?" Reading is shamefully neglected in the High Schools, at least in those (there were eight of them represented at our recent third class examination) which supply us with candidates. I digress to state in this connection that it is frequently remarked by persons from Britain and the United States that our children read badly considering their advancement in other studies. Visiting a number of American schools this summer convinced me of a statement I had heard several times, that in reading, practical composition, drawing and singing, the Americans are in advance of us and *vice versa* with regard to arithmetic and technical grammar. This difference is largely owing to the text-books and examinations. In English grammar for example we may use our choice of Davies, Swinton, Morris or Mason, among them works as good as the best of their class, but in reading, the most important subject on the programme, we have no option. Let any one compare our authorized reading-books with Appleton's, for example. He will cease to wonder that there is a difference, to our disadvantage, between the reading in the American and Canadian schools. It is time to let the text-books on history, and grammar, and arithmetic rest for a season, and direct our attention and energies to the reform of our wretched text-books in reading. In order to hasten our readiness for the reception of such a much-needed reform, I recommend every teacher to procure a sample set of Appleton's, or McGuffey's readers, compare them with ours, and pass them round among the people of his neighbourhood to do likewise. To resume, the Model School masters are expected to teach those young people, thus ill-prepared, to read well in less than two months. Then there are hygiene and physiology, school law and mental arithmetic, all to be taught in this well-filled seven weeks' session. In Middlesex—I do not know how it is in other counties—writing, too, has to be taught. Penmanship is not one of the subjects on the Intermediate programme. It is unnecessary to add the consequence. The students seem to acquire a manner of scrawling their work on paper, with a regard to despatch only.

The style of arrangement on paper or blackboard is often very faulty. Here is a sample : "7 ft. 6 in. long × 4 ft. = 30 ft. ÷ 9 × \$1.25 = \$4.16$\frac{2}{3}$. *Answer.*" Students who get into the habit of saving time at the expense of logic and perspicuity must be taught to take time even to punctuate their written solutions of problems. Yet all this is only a small part of the work to be done in this short session. The syllabus prepared for Model Schools contains twenty-seven lectures. Several of these lectures present in each one of them topics enough to engage the study of the teachers-in-training for a week. For example, in the third lecture, by no means the widest, the master is supposed to deal in one hour with correction and prevention of offences, corporal punishment, public censure, demerit marking, detention, suspension, expulsion, and rules for inflicting punishment. I maintain that were the session lengthened there is necessity for cutting off all the work that could be fairly done before the would-be teacher enters the Model School.

The remedy which I propose to meet the cases of imperfect literary qualification, wretched penmanship, incorrectness and obscurity of method, and to relieve greatly the excessive pressure on the time of the session, is to establish an entrance examination, at which candidates should be examined by the County Boards on uniform papers on the following subjects :

Reading, to test correctness and fluency.

Writing, as shown by a portion of dictation, by specimens for head lines, methods of putting on paper, say, easy parsing and simple problems in Arithmetic.

School Law and Regulations, as far as relating to teachers.

Physiology and Hygiene, Buckton's text-book.

Theory of Education, from Currie's "Common School Education" and "Jewell's School Government."

This examination can be conveniently established to take the place of the non-professional third class examination, and it is very necessary for the reasons I have advanced, more particularly since lads passing the Intermediate, say at fourteen years of age, would have four years to rust perhaps before entering the Model School.

The work just outlined, which might as well, if not better, be done before the student enters, is at present, besides the real work for which the Model Schools were established, crowded into about forty days. The masters and teachers-in-training by the method I have proposed, relieved of a large amount of theoretical work, would have more time and energy to devote to the study and practice of modes of organization, management, and teaching. Then, too, the method of teaching drawing might find a place in the syllabus.

We come now to speak of the final examination at the Model Schools, and here a still greater want of uniformity prevails. At some schools the examination occupies more than a week, including the time taken to read the papers ; in others, two days. One young man who applied to have his certificate endorsed said their (his) examination commenced in the morning, and they went home with their certificates the same evening. According to the last published report only four per cent. of the applicants were rejected; thirty-three of the fifty Model Schools in operation rejected none. In Middlesex last year twenty-four were rejected (some of them the second time) out of forty-nine applicants. I know of three candidates who obtained less than five per cent. in aptitude and practice in teaching, and who seven weeks afterwards obtained about ninety per cent. in the same subject at other. Model Schools.

These facts, and many more that could be added, show the very great want of uniformity in the final examination. Since the nature of this examination determines largely the character of the work done during the session, and is the protection of the public against the imposition of inapt and unqualified teachers, it is the duty of the authorities to provide for an examination that will prove fair, but thoroughly effectual for its purpose. I cannot more practically treat this part of my subject than by describing a programme similar to that of our own examination, which naturally would be the best I know, since every undoubted improvement we can hear or think of is adopted. Each candidate teaches two lessons before the full Board, one selected by himself, the other by the examiners. His teaching with regard to a variety of the most important points is discussed and marked by the Board. Out of the 200 marks assigned for aptitude and practice, the master and his assistants assign a value out of a possible 175, the Board assigns the value out of the other 25. Almost without exception these marks agreed in their proportions. The writing was valued, one-third of the marks being allowed for specimens as for head lines, one-third on the writing in their books containing the notes on the sessional lectures, and one-third on the writing on the blackboard. It is very important that teachers know how to write well and to make good figures on the blackboard. In reading, examples were selected to test specially pronunciation, fluency, and accentuation respectively. In mental arithmetic the master assigns a mark on the basis of his weekly examinations, the Board assigns a mark out of one-third of the total for a paper of easy problems, and the remaining value is assigned for rapidity and accuracy of addition, multiplication, etc., the candidates being taken separately and the time noted ; additions, etc., are made aloud. Each is examined in what may be called conversation. To him are proposed familiar and easy questions requiring lengthy answers, in which his vivacity, choice of language, and correctness of syntax are noted. It may be added in this connection that too many of the teachers are careless and incorrect in the construction of their sentences. In one forenoon a Normal School second-class teacher used the following expressions: "What *will* I do with that boy; he *does be* late *near* every day?" "The fourth class *have went* through fractions." I don't *learn* them spelling in the First Book." Equally fair and nearly as thorough is the written examination on the prescribed portions of school-law, hygiene, and the theory of education. Regardless of the standing a candidate obtains in the other subjects, he is rejected for a failure in the practice of teaching, including energy, order, and the power to secure attention. There are some who would make efficient assistants, whom the examiners do not feel warranted in certificating to take sole charge of a school. To meet these cases a regulation ought to be adopted allowing the Board to grant assistants' certificates. In publishing the names of successful candidates, the best arrangement would be in the order of the efficiency shown in their teaching. The County Model School system is yet crude in its details. I have touched on the examinations only. There is room for a more important paper on the management of Model Schools and the work done in them. This plan of training teachers has been proved to be practical; it is, or may be made, convenient, effectual, and economical. It is the *chef d'œuvre* of the school legislation under the present regime.

The Honourable the Minister of Education and the Sub-Committee on Model Schools, especially the Chairman, deserve our sincerest gratitude for inventing and inaugurating the scheme. The enthusiastic manner in which the Model School Masters have thrown themselves into the work cannot be praised too highly. As an experiment it may be regarded as a complete success, but the reports from all quarters indicate that the experiment is in danger of being lost to us, at least for a time, unless saved by early legislation affecting their sustenance and management. The Government and County grants must be made secure, if not increased. To discuss these questions is beyond the limits of the subject assigned me, but so great is the urgency of the case that I earnestly hope a carefully considered expression of opinion on these points will be given by the Association.

I cannot close the subject of Professional Examinations without referring to those held at the Normal Schools. The basis of the latter is not generally understood, therefore the results are very perplexing. At the examination before the last a large number, I believe about half the candidates, were rejected; at the last only two or three. Perhaps the difference was altogether in the attendants. At the former eight persons with whose success and experience as teachers I was acquainted were examined. Of these decidedly the most successful teacher failed; next to him came three of about equal efficiency, one of whom failed. Of the remainder, some failed and some succeeded. The first referred to failed in drill for one subject. There is only one other teacher in East Middlesex who teaches drill equally well. His failure was inexplicable as he is a good scholar and a most successful teacher. It is unnecessary to multiply examples similar to the one just mentioned. There are enough of them to establish a rule that there is some important factor wanting in the examination of the Normal School students. The detailed report of the Public School Inspector on the experience of the teacher might be obtained and considered in the granting of certificates. More than in the case of County Model Schools is there room and need for a searching paper on the whole Normal School question.

In conclusion—for I wish to be brief to allow time for a full discussion—some may think that my illustrations are pictured in too sombre colours. I offer no apology. My statements are bright compared with what they would be in a paper written in a fault-finding spirit. I am proud of our national system of education, yet sensible to a few of its defects. In that able series of articles on the Dominion of Canada, in Scribner, the Rev. Principal Grant, of Queen's, states what has been frequently asserted before on good authority, that "the French members of the Legislature are a better average in point of education than the English. They are certainly their superiors in precision and elegance of language." This does not prove the system of popular education in the sister Province to be better than ours, for we know it is not, but it indicates one serious defect in our system. The lectures and discussions we heard yesterday on industrial drawing and physical science would lead us to consider whether our popular education is a grand delusion or not.

We have commenced to climb the hill of perfection with "Excelsior" for our motto ; perhaps we have proceeded as far as any other nation, but we are yet so far from the top that it is lost to our view. A danger lies in the applause we have received, for what with diplomas and medals and conferences of the Order of the Palm Leaf and honourable mentions the world has awarded our educationists and system of national education, we may become so satisfied that, wrapping ourselves in stupefying self-conceit, we will, like the fabled hare, lie down to rest, and awaken to find even the tortoises abreast of us.

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MINUTES

OF THE

TWENTY-FIRST ANNUAL CONVENTION

OF THE

Ontario Teachers' Association,

HELD IN THE

PUBLIC HALL OF THE EDUCATION DEPARTMENT, TORONTO

On the 9th, 10th and 11th August, 1881.

Tuesday, August 9th, 1881.

The Convention met at 10.50 a.m.

The President, Mr. Alexander, in the chair.

The meeting was opened with the reading of a portion of Scripture, and with prayer by Mr. D. Fotheringham.

Moved by Mr. MacMurchy, seconded by Mr. Mackintosh, That inasmuch as the Minutes of the last Convention were printed and distributed, the reading of them be dispensed with.—*Carried.*

Mr. Spence, the Treasurer, read his Annual Report.

Moved by Mr. MacMurchy, seconded by Mr. Hughes, That the Treasurer's Report be referred to a Committee to be named by the President.—*Carried.*

The President named Messrs. Purslow, Fotheringham and Duncan, as a Committee to audit the Treasurer's Report.

Moved by Mr. Hughes, seconded by Mr. Doan, That Mr. W. H. Colles be Minute Secretary.—*Carried.*

Afternoon Session.

The Convention met at two o'clock.

The President in the Chair.

The Minutes of the forenoon session were read and approved.

Mr. Hughes presented the report of the Committee on Legislation.

To the President and Members of the Ontario Society for the Advancement of Education :—

Gentlemen,—The Committee on Legislation appointed at the last Annual Meeting of the Association, beg leave to present the following report :—

1. After obtaining the opinions of the teachers throughout the Province with regard to important educational questions, your Committee had several interviews with Hon. Adam Crooks, Minister of Education, at which those matters which were to be submitted by him to the Legislature were carefully considered.

2. Prominent among these was the question of the Superannuation of Teachers. Your Committee found the Minister of Education was exceedingly desirous to secure the Fund for this purpose on a basis that would give greater satisfaction both to the country and to teachers themselves. He felt that it would be better that no change should be made, however, until the teachers throughout the Province had an opportunity of expressing their views concerning the proposed amendments, and at his request your Committee issued a circular, outlining the leading principles of these amendments, for the consideration of the Local Associations. Many of these have reported their views, and your Committee recommend that these reports be tabulated and forwarded to the Minister of Education by their successors. They would further recommend, that this Association representing as it does the several sections of the profession, and the various parts of the Province, should also thoroughly discuss the clauses of the circular referred to. Copies of the circular have been provided to facilitate the discussion.

3. Your Committee strongly urged the withdrawal of the amendment of 1879 restricting the powers of School Boards in providing school accommodation, and a clause was drafted giving Boards the right of appeal to the Minister of Education, if their estimates were not granted, and authorizing him to compel the section or municipality to raise the necessary funds, if on inquiry he found the school accommodation to be insufficient. This clause, your Committee regret to

state, was not embodied in the School Bill submitted to the House, and they recommend this Association to state clearly its views regarding this important question.

4. The necessity for granting increased aid in support of County Model Schools was also pressed upon the attention of the Minister of Education. In this particular important changes were made by the Legislature. The amount of the Government Grant has been increased to $150 per annum, and the County Grant to an equal amount has been made *compulsory*.

5. Your Committee have much pleasure in reporting that they were received by the Minister of Education with the utmost courtesy. He evinced the deepest interest in the welfare of this Association, and kindly promised to give in the future additional proofs of that interest by recommending an annual grant of $200 in aid of this Association, and by incorporating an account of its proceedings with the papers read before it in his Annual Report.

6. Your Committee are glad to note that some Local Associations have followed the example set by this Association in appointing a Committee on Legislation. This they believe to be of great value in bringing the views of the Associations directly under the notice of the individual members of the Legislature, and in forming a means of communication between the Legislative Committee of this Association and the Inspectoral districts throughout the Province, and they therefore recommend that the Secretary of this Association be instructed to issue a circular to the Local Associations of Ontario, showing the benefits which would be likely to result from the general appointment of such Committees on Legislation.

Moved by Mr. Hughes, seconded by Mr. Fotheringham, That the report of the Legislative Committee be adopted.—*Carried.*

Moved by Mr. Mackintosh, seconded by Mr. McGregor, That the thanks of the Association be presented to the Legislative Committee for their services during the past year.—*Carried.*

The President called upon the meeting to discuss the circular of the Legislative Committee in reference to the Superannuation Fund. (*See pages* 15—17.)

Mr. James Mills, M.A., President of the Guelph Agricultural College, delivered a very able and interesting address on Agricultural Education in Schools, and on motion of

Mr. Scarlett, seconded by Mr. Munroe, he was presented with a vote of thanks.

Mr. Johnston, of the Agricultural College, by the invitation of the President, addressed the meeting on the above-named subject. At the conclusion of Mr. Johnston's address, on motion of Mr. Dearness, seconded by Mr. Duncan, a vote of thanks was tendered to him by the President.

Moved by Mr. Knight, seconded by Mr. G. E. Wightman, That in view of the fact that the tendency of the education given in our schools is to draw an undue proportion of our population to commercial pursuits and the professions, it is highly desirable that a complete course of instruction in Agriculture be introduced into our Public Schools.—*Lost.*

The discussion on the Superannuation Fund was resumed, and was participated in by Messrs. Hughes, Dearness, A. Millar, J. Reid, Spence, P. C. McGregor, C. Campbell, Scarlett, Knight, A. S. McGregor, Coates, Stewart and Dafoe.

The Convention then adjourned.

EVENING SESSION.

The Convention met at eight o'clock.

The President in the Chair.

The Minutes of the afternoon session were read, amended and confirmed.

The President read a paper on the Half-time System in the Public Schools, and referred also to Dr. Leigh's method of teaching Reading and to the subject of Ventilation of School Rooms.

Mr. Smith (Wentworth) moved a vote of thanks to the President for the very instructive address. This motion was seconded by Mr. Wood, and carried with applause. The Secretary, Mr. Doan, conveyed to Mr. Alexander the thanks of the meeting.

Moved by Mr. Boyle, seconded by Mr. F. C. Powell, That Messrs. Alexander, McAllister and Doan be a Committee to consider the subject of Hygiene in the Schools of this Province, having special reference to Ventilation and Light, and to report thereon to the Association during this meeting.—*Carried.*

The President in reply to questions by Mr. Boyle, Mr. Strang and others, stated that the Half-time System, as practised in the Galt Public Schools, is conducive to the progress, health and deportment of the children.

Moved by Mr. Dearness, seconded by Mr. Smith, That the last-named Committee do prepare a scheme to conduct experiments for the improvement of methods of teaching, and that said scheme be submitted to the Minister of Education.—*Carried.*

Moved by Mr. Doan, seconded by Mr. McAllister, That the names of Messrs. Dearness, Boyle and Smith, be added to those of the Committee last appointed.—*Carried.*

On motion of Mr. Powell, seconded by Mr. Smith, the Convention adjourned.

Wednesday, August 10th, 1881.

The Convention met at 2.10 p.m.

The President in the Chair.

The Minutes of last session were read and confirmed.

Mr. A. H. Morrison, of Galt, read a paper on Physical Education.

A vote of thanks was tendered to Mr. Morrison for his address, on motion of Mr. Reid, seconded by Mr. Scarlett.

Mr. J. L. Hughes explained and illustrated, in an interesting and practical manner, the method of teaching Drawing, employed in the Toronto Public Schools. A large collection of the results of the system was on exhibition in the hall of the building.

Moved by Mr. Duncan, seconded by Mr. McKee, That the thanks of the meeting be tendered to Mr. Hughes for his address.—*Carried.*

The subject was further discussed by Messrs. Fotheringham, Boyle, Linton, P. McLean and Knight.

The discussion on the Legislative Committee's Report was resumed and some amendments made.

Mr. Doan gave notice that at to-morrow's session he would move, That in future the travelling expenses of the members of the Board of Directors, when in attendance at the Annual Meeting for the purpose of arranging the programme for the meeting of the Association and for other purposes, be paid from the funds of the Association.

On motion of Mr. Clendenning, seconded by Mr. Powell, the meeting was adjourned.

Evening Session.

The Convention re-assembled at eight o'clock.

The President in the Chair.

The Minutes of the afternoon session were read and confirmed.

Joseph Workman, M.D., of Toronto, delivered an address on the Morbid Results of Persistent Overwork.

On motion of Mr. J. L. Hughes, seconded by Mr. Mackintosh, a vote of thanks was tendered to Dr. Workman for his address.

Reports were received respecting County Associations from—

Mr. Geo. Henderson	East Grey	Representing	76	Members.
" W. H. Colles	Chatham	"	92	"
" A. S. McGregor	South Perth	"	80	"
" C. B. Linton	Waterloo	"	62	"
" Wm. Rannie	North York	"	75	"

Mr. L. L. McFaul	North Huron	Representing	50	Members.
" A. McNaughton	Stormont	"	62	"
" J. W. Dafoe	South Hastings	"	120	"
" James Duncan	North Essex	"	100	"
" B. Rothwell	Prince Edward	"	80	"
" R. M. Munro	North Perth	"	110	"
" Robt. Coates	Halton	"	70	"
" G. E. Wightman	South Essex	"	65	"
" C. Campbell	Ottawa	"	50	"
" H. E. Huston	West Huron	"	80	"
" A. L. Parker	North Simcoe	"	80	"
" P. C. McGregor	No. 1 Leeds & Brockville	"	70	"
" Thomas White	East Lambton	"	90	"
" Martin Gill	Toronto	"	150	"
" Jas. Bowerman	Lennox and Addington	"	100	"
" John Millar	Elgin	"	100	"
" F. C. Powell	West Bruce	"	100	"
" J. T. Wood	Middlesex	"	112	"
" D. Bole	Frontenac	"	175	"
" — Henstridge				
" J. H. Knight	East Victoria	"	50	"

The Convention adjourned at ten o'clock.

Thursday, August 12th, 1881.

The Convention assembled at two p.m.

The President in the Chair.

The Minutes of last meeting were read and confirmed.

The Secretary read the following report:—

The Board of Directors beg to report that they recommend that the following gentlemen be elected to fill the offices for the ensuing year:

President—MR. ARCHIBALD MACMURCHY.

Vice-Presidents—1. MR. J. S. CARSON.
2. MR. D. C. MCHENRY.
3. MR. RICHARD LEWIS.

Recording Secretary—MR. R. W. DOAN.

Corresponding Secretary—MR. A. PURSLOW.

Treasurer—MR. F. S. SPENCE.

All of which is respectfully submitted.

Moved by Mr. Mackintosh, seconded by Mr. Dafoe, That the several clauses of the said report be voted upon *seriatim.*

Mr. Knight, seconded by Mr. Reid, moved in amendment, That the report be adopted as a whole.—*Carried.*

The Secretary presented the following report from the Auditors:—

TORONTO, *August* 11*th*, 1881.

The Audit Committee beg to report that they have examined the accounts and vouchers of the Treasurer, and find them carefully and correctly kept.

A. PURSLOW,
JAMES DUNCAN, } *Audit Committee.*
D. FOTHERINGHAM,

Moved by the Secretary, seconded by Mr. Gill, That the report of the Audit Committee be received and adopted.—*Carried.*

Moved by Mr. McAllister, seconded by Mr. Knight, That the Finance Committee be authorized to pass the accounts for expenditure incurred by the Legislative Committee during the past year, and that this be a standing instruction.—*Carried.*

Moved by Mr. Hughes, seconded by Mr. Maxwell, That in the opinion of this Association, the minimum age for admission to Public Schools should be increased from five to seven years, or if this change be not made, that the students-in-training in the Normal Schools should receive training in the principles and practice of Kindergarten work.—*Carried.*

Moved by Mr. Hughes, seconded by Mr. A. S. McGregor, That in the opinion of this Association, the 29th clause of the Amended School Act of 1879 should be rescinded, or so amended as to place no restrictions on School Boards in providing additional school accommodation where the existing school accommodation is insufficient.—*Carried.*

Moved by Mr. Doan, seconded by Mr. Mackintosh, That in case the Government Grant of $200 be paid into the funds of the Association, the future travelling expenses of the Board of Directors when in attendance at its Annual Meeting for the purpose of arranging the programme for the meeting of the Association and for other business, be paid from the funds of the Association.

Moved in amendment by Mr. Maxwell, seconded by Rev. Wm. McKee, That the motion include the Legislative Committee also.

The motion as amended was *carried*.

Mr. J. M. Buchan read a paper on Religious Instruction in Public Schools, by Dr. Wilson, of University College.

Moved by Mr. MacMurchy, seconded by Mr. Lewis, That a hearty vote of thanks be presented to Dr. Wilson for his paper.—*Carried*.

After some remarks on the subject of Dr. Wilson's paper by Messrs. MacMurchy, Lewis and Spence, it was

Moved by Mr. Reid, seconded by Mr. Knight, That the thanks of the meeting be tendered to Mr. Buchan.—*Carried*.

Mr. Boyle presented the report of the Committee on Hygiene and Methods of Teaching.

The Committee on Hygiene and Methods of Teaching beg to report that they recommend—

1. That the Minister of Education be requested to prepare a circular of information for distribution in every school section, to set forth the importance of proper ventilation, lighting and heating of School Houses, and with a view of preparing the way to make it obligatory on every school corporation to secure the approval, by the Education Department, of the plans of any Public or High School building which is proposed to be erected.

2. That a Committee of this Association be appointed to consider proposed improvements in the methods of teaching and school management, for the purpose of submitting them to the Minister of Education, that they may be properly tested by experiment, under the direc-

tion of the Education Department, in case such proposed improvements commend themselves to the said Committee.

Mr. Kirkland proposed that the words "and the best methods of accomplishing the same" be inserted in clause one.

This proposal was agreed to, and the clause, as amended, was adopted on motion of Mr. Boyle, seconded by Mr. MacMurchy.

Clause two was amended by adding the words "and report to this Convention."

Moved by Mr. A. S. McGregor, seconded by Mr. Duncan, That the report of the Committee on Hygiene and Methods of Teaching be adopted.—*Carried.*

Mr. S. S. Herner read a paper on Uniformity of Text Books.

Moved by Mr. Boyle, seconded by Mr. Linton, That the thanks of this meeting be presented to Mr. Herner.—*Carried.*

Moved by Mr. Knight, seconded by Mr. A. S. McGregor, That the President nominate a Standing Committee of three on Hygiene and Methods of Teaching.—*Carried.*

The discussion of the Legislative Committee's circular on the Superannuation Fund was resumed and several amendments made in it. The following members took part in the discussion:—Messrs. Carson, Dearness, Spence, Campbell, Rothwell, Linton, McGregor, Reid, Knight and G. K. Powell.

The Convention then adjourned.

EVENING SESSION.

The Convention re-assembled at eight p.m.

The President in the Chair.

The Minutes of last meeting were read and confirmed.

In accordance with the resolution passed during the afternoon session, the President nominated Messrs. MacMurchy, Hughes and McAllister, as members of the Committee on Hygiene and Methods of Teaching.

Moved by Mr. MacMurchy, seconded by Mr. Black, That the name of this Association be changed from "The Ontario Association for the Advancement of Education," to "The Ontario Teachers' Association.—*Carried unanimously.*

S. P. Robins, LL.D., Montreal, delivered an address entitled, "The Relation of the Will to the Intellect in Education."

On motion of Mr. Hughes, seconded by Mr. McFaul, a cordial vote of thanks was presented to Dr. Robins for his address.

The discussion on the Superannuation Fund was resumed, and at the close of the discussion the following amended report of the Legislative Committee was adopted, on motion of Mr. Spence, seconded by Mr. Campbell (Ottawa):—

1. In lieu of the present provisions of the law respecting the Superannuated Teachers' Fund "The Teachers' Retiring Provident Fund" in this Act termed "The Fund," is hereby established, and such fund shall consist of all sums which may from time to time be appropriated by the Legislature out of the consolidated revenue of the Province and of all sums hereinafter provided to be paid by all persons entitled to a retiring allowance as hereinafter also provided.

2. The following are entitled to a retiring allowance, namely: every male teacher of a Public or Separate School holding a First, Second or Third Class Certificate of qualification under the regulations of the Education Department, or a valid County Board Certificate of the old standard; also every female teacher of a Public or Separate School holding any like Certificate, also every legally qualified master or assistant master of a High School or Collegiate Institute, and every Public or High School Inspector.

3. The conditions on which any such person shall be entitled to the retiring allowance are as follows:—Each person must have contributed annually the sum of four dollars, with the privilege of paying 8, 12, 16 or 20 dollars per year during service.

4. All persons enumerated in Clause 2 as entitled to a retiring allowance shall be required to comply with the conditions of Clause 3 during each year of the period of their service.

5. The said sum shall be made by way of abatement from the annual apportionment of the Legislative Public School Grant, and the Minister of Education shall in his certificate to the Provincial Treasurer of such apportionment also state the amount to be deducted from the salary of each person as his or her annual payment to the said Retiring Fund, and all sums so deducted shall be paid into and form part of the "Teachers' Retiring and Provident Fund."

6. All moneys from time to time payable to the said Fund shall be carried by the Provincial Treasurer to a separate account for this Fund distinct from the consolidated revenue fund and also any interest accruing thereon.

7. Every person who complies with the foregoing conditions as to contributions to the Fund may retire from the teaching service in his discretion after twenty-five years of actual teaching or having reached the age of fifty-five, and shall thereupon be entitled to receive an annual retiring allowance equal to the sums which such person has contributed to the Fund as provided in Clause 2.

8. The interest of any person in the Fund, or in any retiring allowance when granted, shall not be assignable by such person, or be subject to any execution, attachment or process of any court of law or equity, or judge's order under judgment in the division court.

9. No retiring allowance shall be made for any period of service of less than ten years, and no person who retires before having served the full period of twenty-five years will be entitled to a retiring allowance unless it has been established by evidence satisfactory to the Education Department that he has become incapacitated by bodily or mental infirmity from performing his duties as a teacher, master or inspector as the case may be, or unless such person has reached the age of fifty-five years, but any such retiring allowance is liable to be withdrawn in any year unless the incapacity continues, and the recipient is annually to present himself to his or her inspector in order that he may report thereon to the Education Department, and any teacher whose disability may cease and who resumes the service of teaching will become entitled to the benefits of this Fund when such person again retires.

(2) Any teacher or inspector upon reaching the full age of fifty years shall be entitled to his or her retiring allowance notwithstanding the periods hereinbefore provided have not been fully served by such teacher or inspector.

10. No person shall be entitled to receive back any sum contributed to the Fund, but in case of the decease or after two years' continued disability of such person without his or her having been placed on this Fund, he or she, or his or her wife or husband as the case may be, or other legal representative shall be entitled to receive back all sums

paid by him or her into the Fund with interest at the rate of five per cent. per annum.

11. The period or periods during which any teacher, before the passing of this Act, has been engaged in teaching, shall be allowed for as if served under its provisions, and any payments made by him on account of the former "Superannuated Teachers' Fund" shall be considered and taken as payments made *pro tanto* to the Fund hereby established, and any sum which is required to be paid to equal the amount annually payable to the Fund under this Act may be made up by payments in five equal annual instalments after the passing of this Act, or as otherwise provided by the regulations of the Education Department, but those persons enumerated in Clause 2 as entitled to participate in the Fund and who have not been compelled by any former act to contribute thereto shall be permitted to comply with Clause three for the period of service already completed.

12. The allowances to teachers who are now on the list of those superannuated, under the provisions of the former law, will continue to be paid to them under and subject to the conditions thereof.

Moved by Mr. James Duncan, seconded by Mr. W. H. Colles, That we desire that any scheme for the Superannuation of Teachers do also contain provision for the widows and children of Superannuated Teachers, the extent of such provision and the conditions thereof to be determined by the Minister of Education.

Moved by Mr. Boyle, seconded by Mr. Knight, That the reports of the Local Associations should be sent to the Secretary of this Association at least two weeks before the Annual Meeting.—*Carried.*

Moved by Mr. Doan, seconded by Mr. Knight, That the thanks of this Association be tendered to the daily newspapers for publishing each day very full and accurate reports of the meetings; to the passenger agents of the Grand Trunk, Great Western, Credit Valley, and Toronto and Nipissing Railways for the reduced passenger rates allowed to members in attendance here, and to the Minister of Education for his kindness in allowing the Association the use of the rooms in the Education Department.—*Carried.*

Moved by Mr. Carson, seconded by Mr. Powell, That a vote of thanks be tendered to Messrs. Campbell, of Ottawa, and Spence, of Toronto, for their energetic action in revising the circular on the Superannuation question.—*Carried.*

Moved by Mr. Spence, seconded by Mr. A. S. McGregor, That a vote of thanks be presented to Mr. Alexander for the able and courteous manner in which he has performed his duties as President of this Association during the past year.—*Carried.*

After singing the National Anthem, the President declared the Association adjourned.

ONTARIO ASSOCIATION FOR THE ADVANCEMENT OF EDUCATION.

Summary of Treasurer's Account for 1880–1.

DR.

To balance from last year	$162 76
" Interest on deposit	8 80
" Receipts from members' fees	41 50
" " sale of Minutes	42 38
" " advertisements in Minutes	20 00
	$275 44

CR.

By Carpenter's work	$2 50
" Minute Secretary	4 00
" Caretaker of Hall	5 00
" Advertising and programmes	16 75
" Gas account	10 00
" Printing Minutes	46 55
" Postage and express charges	6 88
" Balance on hand—cash, $16.92; in bank, $166.84	183 76
	$275 44

PUBLIC SCHOOL SECTION.

THEATRE, NORMAL SCHOOL, TORONTO,
Thursday, August 9th, 1881.

The first meeting of the Public School Section of the Provincial Teachers' Association was held in the Theatre of the Normal School this morning, beginning at 11.40 o'clock—the Chairman of the Section, Mr. David Boyle, presiding.

Mr. F. S. Spence moved, Mr. R. W. Doan seconded, That the Minutes having been printed be considered as read.—*Carried.*

Mr. Spence read the following report:—

Report of the Committee appointed at the last meeting of the Public School Section of the Ontario Teachers' Association to lay before the Minister of Education the following resolutions:—

1. That the discretionary power given to Public School Inspectors to permit Third Class Teachers, holding Intermediate and Third Class Certificates, to go up for their professional training for a Second Class Certificate, at the end of a year's experience in teaching, should be withdrawn.

2. That the present method of granting permits and permanent certificates to Third Class Teachers, is liable to abuse, and should be altered so as to afford a reasonable guarantee that those teachers securing these privileges are worthy of them.

3. That the vote for Public School Trustees should be by ballot.

4. That the age of candidates on entering the profession should be—for females eighteen (18), and for males, twenty (20) years.

5. That twenty-five years' service in the profession, or having attained the age of fifty, entitle a teacher to superannuation.

6. That no teacher who retires before ten years' service be allowed a refund of more than ten per cent. of his payments to the Superannuation Fund.

7. That the allowance to Superannuated Teachers be increased, and if need be, that the yearly subscription be increased also.

8. That provision be made for the widows of Superannuated Teachers.

9. That rotation of examiners applied to the various Departmental

Examinations would add to the improvement of education throughout the country.

10. That in the opinion of this section, it would be to the advantage of the Province to retain the apparatus part of the Depository for the present year.

The Committee, consisting of Mr. McAllister, Mr. Spence, and Mr. Doan, had no less than three interviews with the Minister of Education to discuss the foregoing resolutions with him. On the 8th of January last they laid them before him. In regard to the first, he pointed out that Inspectors had now no discretionary power, as the Department had decided by regulation that all candidates for Second Class Certificates might be admitted to professional training after one year's experience in teaching. He admitted that it was an open question whether the term was too short or not, and said he did not consider the present regulations as unalterable, and, upon the urgent representations of the Committee, he gave them to understand that the term of service should be lengthened so soon as the supply of teachers would warant it.

He assured the deputation that strict inquiry was made in every case before a permit was granted. When the Inspector did not certify a scarcity of teachers as a reason for the application for a permit, it was refused. The number was yearly decreasing, and he hoped permits would soon be things of the past, except in the remote districts.

He was, in principle, opposed to secret voting, and therefore could hold out no hope of proposing to introduce the ballot into School Trustee elections.

He admitted the desirability of making a higher limit for the age of both male and female candidates for the teaching profession, but doubted whether the respective ages should be twenty and eighteen, or nineteen and eighteen.

He did not think any good purpose would be gained by retaining the apparatus portion of the Depository, as articles of a better quality, and at less price, can be got from private dealers.

He had already adopted the principle of rotation of examiners, and proposed to have more Public School Inspectors among the sub-examiners. The fitness of Public School Masters to act as sub-examiners was brought before him, and he promised to give the matter his consideration.

The remaining and indeed the main portion of the interviews the Minister granted the Committee was taken up in discussing the Superannuation Scheme. The views of the Public School Section were first laid before him. He then submitted a scheme of his own to the Committee, and finally he asked them to lay any plan they could agree upon before him, and he would give it fair consideration.

The Committee gave a good deal of time and labour to the matter, and finally submitted to the Minister a scheme, of which the following are the principal features:—

An annual compulsory contribution on the part of all male teachers in our Public Schools of two per cent. of their salaries. An annual allowance to Superannuated Teachers of two per cent., or one-fiftieth of the average annual salary. Teachers to be allowed to retire and participate in the Fund after twenty-five years' service. No allowance to be made for more than thirty years' service, nor for less than ten, except in case of disability. No deductions to be made from the Fund in favour of those who retire before being entitled to an allowance. Those teachers who do not contribute to the Fund to pay an annual fee of not less than two dollars, which should go to the purposes of the Fund. Training in the Normal School to be accounted as part of the term of service. Provision to be made for the widows of Superannuated Teachers. Those teachers who receive less than three hundred dollars per year to have the privilege of making an annual contribution large enough to entitle them to a pension on a salary up to that amount.

The Committee thanked the Minister for his patient consideration of the matter it was their duty to bring before him, when they finally withdrew.

All of which is respectfully submitted.

The report, after discussion, was adopted.

Mr. James Duncan moved, Mr. Robert Alexander seconded, the reception and adoption of the report.—*Carried.*

Discussion by Messrs. Alexander, McAllister, Doan, Powell, Campbell (Ottawa), Bowerman, Boyle and Munro.

Section then adjourned till nine a.m. to-morrow.

Wednesday, August 10th, 1881.

Section opened at nine a.m., with devotional exercises by Mr. Duncan—Mr. Boyle presiding.

The Minutes of the last meeting were read and approved.

Mr. Alexander moved, Mr. McAllister seconded, That the Secretary procure a Minute Book for the use of the Public

School Section, the account of which to be sent to the executive of the General Association.

Mr. McAllister introduced the subject of Over Supply of Teachers.

The Section adjourned to Mr. Kirkland's Lecture Room.

An animated discussion ensued on Mr. McAllister's subject, participated in by Messrs. Duncan, Wightman, Powell, Colles, Miller, Linton, White, Black, Rothwell, Campbell, Lewis, Alexander, Spence, Harvey, Henstridge, Bole, Dafoe and Bowerman.

Mr. Rannie moved, Mr. Spence seconded, That Messrs. Alexander, McAllister, Wood, Lewis and Colles be a Committee to draft a resolution embodying the opinions of this Section on the subject of Over Supply of Teachers to the Minister of Education. Said Committee to report to this Section to-morrow morning.—*Carried.*

Mr. Smith, Inspector of Wentworth, read Mr. McQueen's paper on Representation at the Provincial Teachers' Association.

The paper was an exhaustive one, and showed great care and labour in its preparation. A vote of thanks was tendered to Mr. McQueen, and the Secretary was instructed to present the same to him.

Section adjourned on motion of Mr. Bole, seconded by Mr. Rothwell.

Thursday, August 11th, 1881.

Section opened at nine a.m., in Mr. Kirkland's Lecture Room—Mr. Boyle in the Chair. Opening religious exercises by Mr. Duncan.

Minutes of the previous meeting read and approved.

Mr. Spence moved, Mr. Doan seconded, That each Local Association be entitled to three delegates to the Provincial Association, who shall be full members of this Association: That any teacher or inspector may be a privileged member upon payment of an annual fee of fifty cents, such privileged member to be entitled to all the advantages of this Association except voting at election of officers or when the 'yeas' and 'nays' are being called. For purposes of representation the Sections to be considered Local Associations.

Mr. J. Wood reported progress of the work entrusted to the Committee, and asked for an extension of time to finish, which was granted.

The Section proceeded to elect officers as follows:—

Richard Lewis, Toronto, *Chairman.*
Wm. Rannie, Newmarket, *Secretary.*

C. Campbell	Ottawa,	*Committee of Management.*
D. Boyle	Elora,	
R. Alexander	Galt,	
W. H. Collis	Chatham,	
Wm. Mackintosh	Madoc,	
Sam. McAllister	Toronto,	*Legislative Committee.*
Robt. W. Doan	"	
F. S. Spence	"	

Mr. Bole moved, and Mr. McLean seconded, votes of thanks to the retiring officers.—*Carried.*

Mr. J. Duncan, Windsor, delivered an address on Model Schools and Model School Work, which was listened to with great attention.

Mr. W. Rannie moved, and Mr. Ferguson seconded, a hearty vote of thanks to Mr. Duncan for the care bestowed on his paper.—*Carried.*

Owing to want of time no discussion of the subject followed.

The Committee appointed to draft resolutions embodying the views of the Section on the question of Over Supply of Teachers, submitted a series of resolutions, which as amended and approved by the Section are as follows:—

That distinguished success in teaching should entitle any teacher to promotion to a higher grade of certificate, without examination, at the discretion of the Minister of Education.

That all candidates who write at examinations for Second Class Certificates, be required to take the Science Group in the Intermediate Course.

That the period of Model School training should be materially lengthened.

That all students-in-training at the Model School be required to pay a fee of ten dollars, half of which shall be refunded to unsuccessful candidates and the unrefunded portion to go to the support of the Model Schools.

That permits, except in remote and thinly settled districts, should be abolished.

That all persons going up for Teachers' Examinations shall pay a fee of ten dollars, said sum to go towards defraying the expenses of examination, and the balance to be placed in aid of the Superannuation Fund—no further fee being charged for passing to a higher grade.

WM. RANNIE, *Secretary.*

HIGH SCHOOL SECTION.

Tuesday, August 9th, 1881.

The Section met in Dr. Carlyle's Lecture Room at 11.20 a.m.

Mr. Seath occupied the Chair, and Mr. Strang acted as Secretary.

Present—Messrs. Seath, MacMurchy, McHenry, Millar (St. Thomas), Purslow, Fessenden, McGregor, Robinson, Spotton, Reid, Strang, Mackintosh, Millar (Bowmanville), Smith and Parker.

The Committees not being prepared to report, some time was spent in desultory discussion.

Mr. Millar (St. Thomas) brought up the motion, of which he had given notice last year, in reference to the regulations of Toronto University.

Moved by Mr. Millar, seconded by Mr. Reid, That in the opinion of this Section the regulation of the University of Toronto requiring attendance on lectures at an affiliated College has the effect of preventing many deserving teachers in our High and Public Schools from proceeding to a Degree, and should be rescinded.

After some discussion, the motion was put to the vote and declared lost.

After some further discussion of a general nature, the Section adjourned to meet again at nine a.m. to-morrow.

Wednesday, August 10th, 1881.

The High School Section met at 9.30 a.m. in the Minister's room—Mr. Seath in the Chair.

Members present—Messrs. Seath, MacMurchy, Millar (St. Thomas), Purslow, Turnbull, Reid, Strang, McHenry, Sutherland, McGregor, Parker, Mackintosh, Smith, Clarke, Jamieson, Birchard, Hodgson, Natting, Spotton, Millar (Bowmanville), Bowerman, Tamblyn, Tilley, Robinson, McBride, Hunter, Wightman, McGill, Fessenden.

The Secretary, Mr. Strang, having stated that his term of office had expired, and that he wished to be relieved, Mr. Fessenden was chosen to take his place.

The Chairman explained to the Section that the memorandum of the Minister of Education had been submitted to the Executive Committee in conjunction with the Special Committee appointed last session to consider the manner of distributing the Legislative Grant to High Schools, and that the joint Committee had prepared a series of resolutions which would be submitted to the Section.

Mr. McHenry, Secretary of the joint Committee, read the resolutions approved by them, which were as follows:—

1. That the fixed grant to each High School or Collegiate Institute be one-fourth of the amount paid for teachers' salaries.

2. That a portion of the grant be given on general average attendance, and that a further sum, say $3 per pupil, be granted on the average attendance during the preceding year of those who pass the Intermediate Examination.

3. That the clause in the Statute relating to the establishment of Collegiate Instutes should be repealed, in so far as regards the required attendance of a certain number of boys in Latin or Greek.

4. That any High School should be recognized as a Collegiate Institute, and should receive a special grant of, say, $400, on condition of its employing five teachers, four at least to be masters, and maintaining an average attendance of not less than 120 ; and that in addition to the other general conditions now required by the Department, some minimum Upper School attendance, say ten or fifteen, be demanded. Provided, however, that three years shall elapse between the adoption by the Department of any such regulation and the withdrawal of such grant from any of the Collegiate Institutes at present existing, which may fail to fulfil the above conditions.

5. That in the interest of secondary education, it is desirable that a minimum fee of, say, $5 per annum, should be established in all High Schools, provided some arrangement be made to meet the case of those towns which contain High Schools and whose Public Schools contain no Fifth and Sixth classes.

The report was received, and on motion of Mr. McGregor, seconded by Mr. Reid, it was determined to consider it clause by clause.

Mr. Fessenden moved, seconded by Mr. Millar, That the first resolution be adopted.

After a full discussion, the motion was carried.

The first clause of the second resolution was adopted without discussion.

On the second clause of the second resolution being brought under consideration, it was moved by Mr. Strang, seconded by Mr. Millar (St. Thomas), That the clause be struck out, and that the following be substituted for it :—That in the opinion of this Section, the Intermediate Examination being now sufficiently well established to stand on its merits, it is desirable, with a view to removing unhealthy pressure from teachers and pupils, that no further grant be made on the results of the Intermediate.

A warm discussion followed, in which nearly all present took part. The amendment, on being put to the vote, was lost.

The second resolution, as prepared by the Committee, was then adopted on the following division, many not voting at all :—

Yeas—Messrs. Hunter, Clarke, Hodgson, Parker, McGregor, Smith, Sutherland, Mackintosh, Spotton and Fessenden—10.

Nays—Messrs. Strang, Millar (St. Thomas), Jamieson, Turnbull, Wightman, Bowerman, Robinson, McHenry and Reid—9.

It was moved by Mr. Hunter, seconded by Dr. Purslow, That in the opinion of this Section a fee of $1 should be imposed on each candidate at the Intermediate.—*Lost.*

The Section adjourned to meet again at nine a.m. on Thursday.

Thursday, August 11th, 1881.

The Section met at 9.15 a.m. in the Minister's room—Mr. Seath in the Chair.

Members present—Messrs. Seath, MacMurchy, McGregor, Hodgson, Galton, Strang, Purslow, Millar, Hunter, Bowerman, McHenry, Spotton, Mackintosh, Smith, Turnbull, Jamieson, Clarke, Parker, Sutherland, Wightman, Robinson, Reid, Fessenden and others.

The Minutes of the previous session were read and adopted.

The consideration of the report of the joint Committee was continued.

Mr. Reid moved, seconded by Dr. Purslow, That the third resolution be adopted.

After a short discussion, the motion was carried.

On the introduction of the fourth resolution, Dr. Purslow moved in amendment, seconded by Mr Strang, That the principle of making an additional grant to any High School without, at the same time, imposing other and higher work on such school than that imposed on High Schools generally, is indefensible.

In amendment to the amendment, it was moved by Mr. Robinson, seconded by Mr. Turnbull, That in the opinion of this Section Collegiate Institutes should continue to exist, but that the basis of establishment and continuance should be broadened by including girls as well as boys, and by recognizing other studies as well as Latin and Greek.

The amendment to the amendment was carried.

On motion of Mr. Strang, seconded by Mr. Millar, it was resolved, That in the opinion of this Section no school should receive a total grant of less than $400 or more than the highest grant paid to any school this year.

Mr. Fessenden moved, seconded by Mr. MacMurchy, That the fifth resolution submitted by the Committee be adopted.

After some discussion, the motion was carried by a vote of 14 to 8.

It was moved by Mr. McHenry, seconded by Mr. Bowerman, That in the opinion of this Section the standard for admission to High Schools should remain as at present, but that some suitable elementary text-book in English History should be prescribed for Public Schools.—*Carried.*

Mr. Millar (St. Thomas) moved, seconded by Mr. Hodgson, That this Section is of the opinion that questionable advertising and other methods of like character which tend to induce students to remove from institutions to which they fairly belong for the purpose of building up large Collegiate Institutes and High Schools, have the effect of lowering the professional respect of teachers.—*Carried unanimously.*

After some discussion as to what should be called questionable advertising, it was resolved that the Executive Committee be requested to consider the same and report at the next annual meeting.

Mr. McHenry moved, seconded by Mr. Fessenden, That Messrs. Seath and MacMurchy be requested to prepare a resolution in reference to the retirement of Dr. Tassie.—*Carried.*

The Section then proceeded to the election of officers for the next year.

Moved by Mr. Strang, seconded by Mr. Reid, That the Executive Committee for the next year be composed of Messrs. McHenry (Chairman), Fessenden (Secretary), MacMurchy, Purslow, McGregor and A. Millar (P. S. Master, Walkerton), and that the Legislative Committee be composed of Messrs. Seath, Millar (St. Thomas) and Hunter (Waterdown).—*Carried.*

The Section adjourned to meet again at four p.m.

The Section reassembled at four p.m.—Mr. Seath in the Chair.

The Minutes of the previous session were read and adopted.

Moved by Mr. Strang, seconded by Mr. Robinson, That in the opinion of this Section it is desirable that the course of study prescribed for the Lower School should be revised so as to make it more flexible, especially in the case of girls, and to secure the payment of greater attention to the higher English branches.—*Carried.*

Moved by Mr. Robinson, seconded by Mr. Hodgson, That in the opinion of the High School Section the amount of Latin and French prescribed for the Intermediate is too great, and that the programme should be amended by striking out *Cicero pro Archia*, or some equivalent, and a portion of the French.—*Carried nem. con.*

Moved by Mr. MacMurchy, seconded by Mr. Strang, That this Section tender the cordial thanks to Dr. Tassie for the careful attention which he gave to the interests of the High School Section while he acted as their representative on the Senate, and express their regret at his withdrawal from a profession in which he has laboured so long and successfully. —*Carried.*

MINUTES OF PUBLIC SCHOOL INSPECTORS' SECTION OF THE ONTARIO TEACHERS' ASSOCIATION.

Tuesday, August 9th, 1881.

The Section met in Mr. Kirkland's room in the Normal School Building, Toronto, at eleven a.m.

Present: Messrs. Hughes, Carson, Scarlett, Knight, Fotheringham, McIntosh, McKee, Clendenning and Maxwell.

An informal discussion was held concerning the professional training of teachers, the general opinion being that improvement is much needed.

Wednesday, August 10th, 1881.

The Section assembled at 9 a.m., in the private room of Dr. Carlyle.

Present: Messrs. Hughes, Knight, Scarlett, Carson, Clendenning, McKee, Smith, Barnes, McIntosh, Fotheringham, Campbell, Agnew, McNaughton and Maxwell.

A committee consisting of Messrs. McKee, Carson and Knight was appointed to draft a resolution concerning professional training in the Normal Schools, to be presented to the Section on Thursday morning.

The following resolutions were passed:—

Whereas it is by law the duty of Public School Inspectors to inspect the accounts, classes, and working of Mechanics' Institutes;

Whereas the work involves considerable travel, labour, responsibility and time ;

Whereas the labour involved does not depend upon membership, nor to any considerable extent on the obtaining of the Government grant to each Institute ; and

Whereas the responsibility and time of Inspectors are worth at least $5 a day and actual travelling expenses :

Resolved,—That the remuneration proposed is wholly inadequate, and that the treatment of Inspectors in setting their services aside in 1880, and then in 1881 insisting upon their doing the work of inspection for remuneration which, when reduced by reasonable allowance for horse-hire and other expenditure, does not equal that made to ordinary day labourers, is not worthy of the usually reasonable and considerate course of the Education Department.

Resolved,—That in the opinion of this Section it is desirable that the Non-professional Examination of teachers be separated from the High School Intermediate Examination as at present established.

1. To provide for examination of candidates for Teachers' Certificates in the subjects of reading and penmanship.
2. To abolish the option of taking Latin or French or German in lieu of the Natural Philosophy Groups.

Thursday, August 11th, 1881.

The Section assembled at nine a.m.

Present: Messrs. McNaughton, Knight, Clendenning, Scarlett, Carson, McKee, Fotheringham, Smith, Hodson, Dearness, Agnew, Barnes, Burrows, Little, Campbell, McIntosh, and Maxwell.

Mr. McNaughton was appointed Chairman *pro tem.*

OFFICERS ELECTED.

J. S. Carson, Strathroy, *Chairman.*
D. A. Maxwell, Amherstburgh, *Secretary.*

J. L. Hughes	Toronto,	*Directors.*
J. Dearness	London,	
D. Fotheringham	Aurora,	
E. Scarlett	Cobourg,	
J. W. Dafoe	Belleville,	

J. L. Hughes,	*Legislative Committee.*
J. S. Carson,	
D. Fotheringham,	

Resolved,—That in the opinion of this Section the professional training of First and Second Class Teachers is quite defective and the attention of the Hon. the Minister of Education is hereby respectfully directed to the necessity of a thorough investigation into the character of the lectures delivered in the Normal Schools and into the methods of teaching practised in the Model Schools.

A general and profitable conversation was held on "A Day's Work in School," which was introduced by Mr. Dearness.

Resolved.—That it is the opinion of this Section that Clause 29 of the amended School Act of 1879 should be repealed, as detrimental to the best interests of education.

Resolved,—That whereas the present method of extending teachers' certificates has proved very unsatisfactory, therefore, in the opinion of this Section, the power of extending such certificates should be vested in the County Boards of Examiners ; that the said Boards of Examiners should be empowered to require candidates for such extensions to attend any one of the departmental examinations or not, at their discretion.

Resolved,—That whereas in several counties there is at present a scarcity of teachers, this Section would respectfully recommend that in these the Boards of Examiners be authorized, on representing their necessities, to grant Third Class Certificates, on receiving the necessary Model School training, to a sufficient number selected from the best of those rejected at the Intermediate Examination held in such counties, in order to relieve such scarcity ; and for this purpose the Boards, on application to the Department, be furnished with the marks obtained at this examination.

Resolved,—That in the opinion of this Section it is unnecessary to have the marks returned for every question in the Entrance Examination report, as these marks are put on the papers of the candidates, which are all sent to the Department.

PAPERS

READ BEFORE

THE ONTARIO TEACHERS' ASSOCIATION,

1881.

PRESIDENT'S ADDRESS.

Ladies and gentlemen, I purpose speaking to you about an experiment in teaching junior classes which has been in operation for the last year in the Public Schools of the town of Galt. The Galt half-time system, as it is usually named, was suggested by Messrs. Cowan and Mowat, members of the Public School Board of the town of Galt. It was these gentlemen who first suggested that the children should, during play hours, be placed under the charge of some person competent to control and oversee them. The plan was devised for the purpose of lessening the hours which the junior scholars spend in the schoolroom in the study of their lessons—I might more truly say in the pretended study of their lessons—and yet not have them sent home during any portion of the school day. A half-time school generally means a school in which the pupils are one half of the day at school and the other half of the day at home, so that one group of scholars attend in the forenoon, and another in the afternoon, of the same day. Such half-time schools are established in a number of places. They have such schools in the city of Washington, D C. The Superintendent in one of his reports says: "Eight half-day schools were in operation during the past year, and in September last three more were added to the number, making a total of eleven. In the first year of the school course, the children in these schools progress as rapidly and accomplish as much as those in attendance the whole day. In the second year a daily session of four hours would be better than one of three. The objections to half-day schools come chiefly from those parents who desire to be relieved from the care of their children through the day, and look upon schools as the legitimate and proper nurseries for them. These objections must fail to have weight while our school fund continues so inadequate to supply more pressing wants." Galt tried a half-day plan similar to the above, but it proved unsatisfactory to a number of the parents. It was to prevent complaints from parents similar to those made by some of the parents in the District of Columbia, that caused the half-time system in Galt to take the form it has. While it may be a subject of doubt and debate whether the hours of attendance at school for the larger scholars should be shortened or not, I think it is generally conceded that for the junior scholars, say in the First and Second Readers, five or six hours per day is too long. Such long sessions for young children are fraught with danger to the health. The close confinement in an atmosphere more or less impure, the enforced quiet and irksome restraint are no less hurtful to the child's health than they are unnatural. The mind as well as the body suffers from the long sessions of the school. It becomes slow and inert from the want of suitable exercises. It loses its elasticity and natural curiosity, and is dwarfed by the unnatural repression and restraint under which it is placed. In the Galt half-time system the scholars are all day at school, but only one half of the time in the school-room, and the other half of the time in the play-room. A division of 100 or 120 is assigned to each of the teachers, who are engaged in teaching the half-time scholars. Each division is divided into two sections, one of which, on the opening of the school in the morning, goes into the school-room, for ordinary instruction, and the other section goes into the play-room. Each section remains in its room until the middle of the forenoon, when the sections change rooms. Those pupils who were in the play-room go to the school-room, and those who were in the school-room go to the play-room. The afternoon work is arranged in the same manner as the work of the forenoon. I need not say anything about the work done in the school-room. It is the ordinary work of the First and Second Readers, with which you are all familiar. During the time the pupils are in the play-room they are under very much less restraint than in the school-room, but still they are under control. There is a teacher who takes charge of the play-room, and who has usually about 100 children under his care. While the exercises of the play-room are called play, and they assume the guise of play, it is not rude nor helter-skelter play. It is play with method and design in it. The games are under the control and guidance of the teacher who has charge of the play-room. There are games intended to develop and strengthen the various parts of the body; these consist of simple exercises in gymnastics, such as extension motions, marching, and the Kindergarten songs with motions. There are also games with balls for teaching colour. We have nine balls, which are covered with worsted crocheted on each. One is covered with white, another with black, and each of the remaining seven with one of the seven prismatic colours. We also use some of the Kindergarten building blocks for the purpose of giving training in form, and also to develop originality in the child.

For training the voice and the ear we have singing and bell-ringing. The incidents of school life, with the reading of stories, are made the channels for teaching morality and manliness of character, and also kindness to dumb animals. We have another exercise connected with the play-room, and it is one which I consider very valuable for training and instruction; I refer to object lessons. Perhaps it would not be out of place to go a little into detail about these object lessons and how we teach them. We aim at training, through these object lessons, the observing or perceptive faculties, and also the conceptive faculties, and in the third place to give instruction in language. You will observe that we do not aim at imparting information or knowledge of the properties or uses of the object under consideration. Whatever information may be given about the object in regard to its properties or uses is incidental, and no importance is attached to it. Allow me to outline the method of giving an object lesson to your half-time pupils. The object, whether it be a representation of the thing or the thing itself, is handed to the pupils who singly or in groups, according to the nature of the object, examine it as minutely as they can. This will occupy say fifteen minutes. Then the object is put out of sight, and they are asked to tell what they have seen. They usually tell the number of things seen, if more than one, the different parts and their number, the colour, etc. Their answers are required to be complete statements. Any incorrectness of speech is noted by the teacher, and corrected immediately. Great care and watchfulness are enjoined on the teacher in this matter. In this way we endeavour to give training in sharp and correct observation, in forming distinct conceptions, and training and instruction in the use of language suitable for the expression of the ideas or conceptions formed of the objects seen. Thus, to observe correctly, to form clear ideas, and to use correct and proper expressions are the things aimed at in our object lessons. In the above sketch I have outlined the work done in the play-room. But you are not to suppose that there is anything like a time-table to follow, or any routine in these exercises. The person in charge of the play-room is untrammelled by time-table or any other thing of that sort. He has to determine what is most suitable at any particular time. He is requested not to fall into routine, so as to keep up interest in the plays. The pupils, therefore, cannot tell what is to be the next exercise. They often make requests for one or another of their games. In the exercises the idea of lesson or task is never brought before the pupils. In fact, the word lesson is never mentioned in connection with any of the exercises of the play-room. It may not be amiss to tell what kind of a room our play-room is. It is a room about forty feet long by about twenty-four feet wide. It is supplied with a row of benches ranged along the walls of the room. It is also well supplied with blackboard from the baseboard to a height of about four feet from the floor, so that the pupils may be able to use it when required. In this room all the marching and games are usually carried on. Adjoining this room and connected with it by two doors is a gallery-room, in which singing and object lessons are given. There is also a large room in the basement used for play by the half-time pupils. And now to sum up. We aim at giving training or instruction in the following :—Training of the physical powers, by means of simple exercises in gymnastics, etc. ; training of the ear and voice, by means of singing simple songs and bell-ringing ; training of the observing faculties, by means of object lessons ; instruction in language, by means of object lessons ; instruction in morals, manners, etc., by means of stories and incidents. Thus you will observe that we have aimed to give the child a well-regulated system of combined study and play, bringing into action both the mental and physical powers of the child in accordance with the nature of the child. We have given, we think, due attention to the child's love of activity. It is plainly written in the nature of all young children that enjoyment is a portion allotted to them by nature. The search for pleasure and enjoyment seems to be their chief employment. Whether the child be in the house or in the fields or on the street, it seems to be always in eager search for that which will minister to its enjoyment and add to its happiness. If this be a part of the young child's nature, should it be ignored and disregarded as a trivial matter, or as a characteristic of the child's nature to be suppressed and extinguished ? Or, should we make an ally of this feature of the child in our attempt to educate it ? I think the wiser plan is to make an ally of the child's love of amusement, at least during the earlier years of its school-life. And without doubt the pleasanter we can make school-life to scholars of all ages, and at the same time maintain an interest in school work the greater will be the progress of the scholars. Another feature of the system of which I am speaking is its social character. Madame Necker says :—"The dominion which children exercise over each other is almost unbounded. Whatever may be the difference in their future destiny it vanishes before their present community of feeling and equality of situation. Their influence over each other must, therefore, be either very dangerous or highly useful ; and by obtaining the direction of it we secure to ourselves the advantage of a most powerful instrument in education." Currie, in his "Early and Infant School Education," says : "We know the almost boundless influence which children have upon each other, especially when they are of the same standing and engaged in the same pursuits. It is a power in the school as great as that of the teacher himself. Where it is exercised to promote the common comfort, the circumstances of the school are favourable to the child's happiness ; where used with an opposite design there is a blank in his happiness which nothing can supply. Children suffer no misery like that which they deliberately inflict on each other when actuated by the spirit of mischief. Our provision for the child's happiness is incomplete, therefore, till we have considered the social aspect of the school. Unless this be healthy, moral training is impossible." During the time spent in the play-room there are frequent breaks in the exercises, and time and opportunity are thus given to the children to talk with each other. Their deportment towards each other is noticed, and, if necessary, corrected. But the supervision of the scholars during their games has also a good effect. It is in the case of the shy and timid scholar that the play-room is an important matter socially. When the games and plays are engaged in under the eye and in the presence of the teacher, the nervous or the strange child is not molested nor intimidated by the more boisterous or mischievous scholars. In the freedom that the play-room gives, we have a good opportunity to see how they conduct themselves, and to become acquainted with their dispositions and their excellencies and faults of character. The knowledge thus acquired is very important and useful in guiding the teacher in regard to what hints and talks are necessary, and most likely to have a practical and beneficial effect for the scholars as a whole. It is also a guide how to deal with the individual members of the class. The freedom of intercourse which the scholars have with each other in the play-room, has, we think, a good effect on them, in making them forbearing to each other and more considerate of each other's feelings. I suppose the question you are wishing to ask and to hear answered is: How has the experiment succeeded? Before answering the question, I wish to state that we have had some hindrances that affected the working of the school, and consequently the results have been modified by these hindrances. The plan was put into operation last September. For about three months, beginning with last October, a large number of the junior scholars were sick, the town having been visited with measles, whooping-cough, and scarlet fever. One of the teachers who was teaching the half-time scholars resigned at Christmas. I am now ready to answer your question. We know that the listlessness and indifference that were too common among our junior pupils have almost all disappeared, and we attribute that result to the half-time system. Instead of being lifeless and inert they are full of life and activity; quick and prompt, as well as apt in giving answers to questions proposed to them. You may wish to ask, how have the pupils got on with their book-work? We think they will compare favourably with the scholars who attend school, and are engaged all day with their books. Do you wish to ask me how about the interest the children evince in the school; or in other words, do they like the schools? We think we are fully warranted, by all we know and have seen, in saying, without any hesitation, they are very fond of school. In reference to the results of the physical training it is not so easy to note changes or improvements on the children. We know that the children enjoy the games and exercises of the play-room, and the results, we think, cannot be other than beneficial, as all the games and exercises tend to strengthen the body, or to impart precision or dexterity to its movements. The system must therefore have a good effect on the health of the children. One of the benefits is the relief which the eyes of the pupils get, as they have not the strain which steady application to book or slate-work for six hours per day entails. In view of the facts brought to our knowledge by the experiments of Professor Cohn and others (as given in an article entitled "Eyes and School-books," in the May number of the *Popular Science Monthly*) such relief cannot but be a boon.

The question has come into my mind, should experiments for the improvement of the methods of teaching be made by Boards of Trustees, or by the Education Department? It seems to me that the Education Department should have some place where methods that claim to be an improvement on existing methods of school work might be put to a rigid test and the results made known to the public. As the school law at present stands there is very little liberty given to either teachers or trustees to deviate from the programme. But the uniformity should not be maintained so rigidly that it would tend either to discourage or to prevent improvements. Because of the great uniformity that now obtains in education throughout the Province there is a necessity—if that uniformity is to be maintained at a high degree of excellence—that there be some central authority to test and pronounce upon whatever may have claims to be a new or improved method of imparting instruction.

The school system of the Province should be so progressive that reforms in teaching would be given a courteous welcome, and an immediate and hearty recognition. Some persons might go further and say that it would be a proper function of the Education Department to search for and introduce such reforms. The writer of the article on education in the "Encyclopædia Britannica" says that "The science of education is still far in advance of the art." Would it not tend to remove in part this reproach, and also have a stimulating effect on the profession if it were known that the Department was ready to receive suggestions for the improvement of school work, and that it had the necessary appliances whereby all suggestions that are likely to prove beneficial would be put to a practical test? I think it would. I know that the profession is very conservative. It takes a long time and a great amount of perseverance for any one who claims to be a reformer in education to receive recognition. Names will readily occur to all of you, of men who pressed upon the attention of their contemporaries, educational reforms which were either slighted or decried during their lives, but adopted and extolled after their death.

I wish to direct your attention to a new system of teaching reading to junior classes. For a number of years it has been claiming recognition and adoption from the teachers and school authorities of the United States. The author of the system thinks the ordinary plan of teaching junior classes is not as time-saving nor so fruitful of good results as his. I refer to Dr. Leigh's "Pronouncing Type." I quote Dr. Leigh's description of the system as I find it in the Report of the Superintendent of the Boston Public Schools for 1872:—"What is it? It is orthography, the common orthography of our books and newspapers. It is not phonotypy; the spelling is not changed, every word being printed and spelled according to our standards, Webster and Worcester. But it is a pronouncing orthography. It shows the exact pronunciation of every word. A special form of a letter is used for each sound of it. Letters which have no sound are printed in a hair-line or light-faced type. It thus shows the pronunciation without changing the spelling, and even preserves the familiar form or face of the words as we are accustomed to see them in our books and newspapers. Words printed with this type differ less from those on this page in the common Roman print than Italic words do, or those printed with most of the fancy types so much used in our newspapers and advertisements. In this way, without doing any harm, it does great good. It does for the reading lessons in the child's primer what Webster's or Worcester's accent marks do for the words in their dictionaries; only it avoids the use of the accents, which would be a blemish to the page, and would not be practical or useful enough for the children. It is designed and used, not for the dictionary merely, but for the primer, making every word, and line, and page, a pronouncing dictionary for the learner, always under his eye, that he can use with ease and certainty at the very time he needs it. It thus combines in one or two English languages—the written and the spoken—which have been hitherto so widely separated by our difficult and irregular orthography. It is not a new book, but a way of printing any primary book, the very same books which have long been approved and used in our schools."

The author of the system claims that the following results have been produced in the Boston schools by the trial of the system. I find these, among others, in the report of 1872:—"Their [the pupils'] rapid progress in learning to read; their correct and distinct pronunciation; that in learning to read in this print they are learning to read in common print, there is really no transition to make; the correction of foreign brogue, accent and bad pronunciation; the distinct utterance of every sound; the correction of careless utterance; the cultivation of self-reliance and self-help. The pupils can do and study themselves and not look to and lean on the teacher; the cultivation of the eye and ear in discriminating the various forms and sounds of the letters, and the habits and power of observation thus acquired, with their future influence, extending, as it must, to all their future reading, writing and spelling; the cultivation of the vocal organs by this constant practice and drill; the training of the mind to order, regularity, consistency, truthfulness in school, and in books, such as the child meets with in nature out-of-door. The importance of the immense saving of time (doing two years' work in one), especially to those children who, in Boston, have but four or five years' schooling, and in most cities and towns but two or three; the uniformity of these results in all the schools here and elsewhere where this print has been used, and the very strong and decided testimony of most, if not all of the teachers; the difficulties and objections have been only in anticipation and have vanished before experience. Teachers who began with reluctance and doubt, have uniformly succeeded before reaching the end of the primer, and have become decidedly in favour of the method." Dr. Philbrick, the Superintendent of the Boston schools, in the report of 1872, says of the system:—"For several years it has been optional with the district committees to adopt this system or not. Its success, where it has been used, has been so decided that it seems desirable that it should be made obligatory in all the districts." Dr. Leigh, in a memorial sent to the National Education Association in 1879, stated that by his system "the lowest classes in the St. Louis Public Schools do the work in one year, which used to consume two and a half years, and that the Principal of the Boston Training School has carried her pupils through the Second Reader in the same time that before was used in mastering the First Reader."

I know nothing practically of the above system. But, if what is claimed for it be true, think what an immense saving in time it would be to have it adopted in the schools of this Province. But its claims should first be tested by some competent authority. I say the Education Department of the Province. No Board of Trustees can legally put such a plan to the test, as it would involve the use of unauthorized text-books. Neither should experiments be made at the charge of any Board of Trustees. They should be made for the benefit of the Province, and the expense be borne by the Province. There are indications in many places that some of the friends of our schools think that the programme should be modified or changed in some way. Why not get these persons to point out the changes desired, and then apply to them the test of experience, and if found beneficial, then make the changes general? Such an institution as an experimental school would do much to prevent schism or dissent among the present friends of our Public Schools. It would be a pity if too great conservatism in school matters should give just ground for dissent.

I wish to direct your attention for a moment or two to another subject, which I think should receive more direct supervision from the Department; that is the ventilation of school-rooms.

Health is so important a factor in education and in a happy and successful life, that I think it is high time for some central authority to see and enforce that adequate provision be made for the ventilating of school-rooms. Would it not be well that the Department should require in the case of every new school building, that the plans be submitted to some competent person, specially appointed for the purpose, for approval in regard to the provision made for the thorough and sufficient ventilation, and perhaps it would be well to say lighting of the building?

I am aware of the regulations on the subject. But from my observations and some inquiry, I am of the opinion that even in many of the more recently erected school-houses there is no provision for ventilation. The regulations recommended 120 cubic feet at least of air space for each pupil in rural schools, and other schools 100 cubic feet. Why the difference? In Ontario we have not had, that I am aware, any skilled investigation in the ventilation of any number of our school-rooms. But in some of the cities of the United States they have. Allow me to quote from the report of the Committee appointed by the Board of Public Education to inquire into the sanitary condition of the schools of Philadelphia. The Committee consisted of eleven physicians. They visited the schools in the winter and early spring. They reported upon forty four schools. They say: "The space allowed to each pupil is too small. The average of rooms reported is 143 cubic feet per pupil. The range is from 272 down to 66, in different schools. Even with efficient ventilation, the space should not fall short of 200 or 300 cubic feet. The percentage of carbonic acid is stated in regard to thirty-one rooms The ratio of ·56 in 10,000, reported in one room, is very extreme. The average for thirty-one rooms is ·18 per cent. The examination of ten schools by a professional chemist exhibits an average of ·1315, and a range of from ·06 to ·21 per cent. In these last, and in nearly all the other cases, it is expressly stated that windows were open. Two analyses of external air showed the presence of ·0288 and ·03205 per cent. C O 2, the proportion normally varying somewhat with the weather and other conditions. A score of the schools examined have no system of ventilation whatever. The rooms examined by Mr. Thomson, the chemist, are said to be very favourable specimens of our schools, being all of recent construction. Even here windows were constantly open." Who can possibly estimate to what extent the laws of health are violated by compelling these 92,000 persons (the number of scholars and teachers in the city schools) to breathe day in and day out an atmosphere surcharged to the extent of five, six, or seven times the sum of carbonic acid that normal air contains, and then superadded to this a sum of organic impurities which may be expressed by the same numbers as indicate the excess of carbonic acid? Who can, in numbers, express the degree of violence done to health, the sum of human suffering engendered, and to what extent life may be shortened by the respiration of the unnecessarily impure atmosphere of school-rooms? A similar report might be made of other cities. Allow me to give you one example from Brooklyn, N.Y.:—" No. 15, constructed for 800, has 1,900; ceiling low, air renewed only through windows. In one room 67 children, 30 cubic feet to each child" Dr. Thomas F. Rochester, of Buffalo, says:—" From 800 to 1,200 cubic feet of air is the amount of space that is required to be allotted to each individual in the United States military hospitals. In Public School No. 15 (Buffalo) each poor child has but 56 cubic feet of air. No wonder that scarlet fever, diphtheria, typhoid fever, and blood poisons of every description are more or less prevalent A large proportion of these dread disorders are generated in and propagated by our public schools." In circular No. 4, issued last year (1880), by the Bureau of Education, United States, and prepared by Mr. T. M. Clark, a well-known architect of Boston, and which treats of school architecture, he says:—"The amount of fresh air which is allowed to hospital patients is about 2,500 cubic feet per hour. Criminals in French prisons have to content themselves with 1,500 cubic feet per hour. Assuming that we care two-thirds as much for the health of our children as we do for that of our thieves and murderers, we will make them an allowance of 1,000 cubic feet each per hour. Forty-eight children will then need an hourly supply of 48,000 cubic feet. Definite provision must therefore be made for withdrawing this quantity of foul air. No matter how many inlets there may be the fresh air will only enter as fast as the foul escapes, and this can only escape through ducts intended for that purpose."

My apology for venturing to direct attention to the subject of ventilation is its great importance in education and individual and national prosperity.

RELIGION IN THE PUBLIC SCHOOLS.

BY DANIEL WILSON, LL.D., PRESIDENT OF UNIVERSITY COLLEGE.

Canadians are justly proud of their school system. It commends itself to approval on various grounds, but on none more so than as a truly national system, available for all, without distinction of class or creed. But in its adaptation to the requirements of a country where no special creed or established form of religion is recognized, and to a Province in which the leading Protestant denominations and the Roman Catholic Church are all alike largely represented, it has been indispensable to secure the exclusion of everything that could be reasonably objected to by any of them as encroaching on their province of religious instruction. But does it necessarily follow that religion is excluded from our Public Schools and Colleges, as a thing which the State, and all who are under its control, are bound to ignore? That this is a question which you view with sensitive jealousy I may assume to be proved by the request you have made to me to discuss it at this Convention.

The profession of the Teacher is not only an honourable one; it is also a most responsible one. If you fully realize what education is your duties are only second to those of the Christian minister. You have entrusted to you the moulding and fashioning of the rising generation; the making, in no inconsiderable degree, of the future of this young country. Is it then the intellect alone with which you have to deal? Will it be the fulfilment of your high duty to send forth the boy or the girl committed to your training

"A reasoning, self-sufficient thing;
An intellectual all-in-all"?

In other words, can that be regarded as a perfect, or even in any true sense a satisfactory system of education which deals only with the intellect and leaves to other sources, or to chance, the moral and religious elements?

I venture to assume that the great body of the teachers of Ontario are at one on this question. Knowledge is indeed power; but the fruit borne by the tree of knowledge is both good and evil. Moral and religious training must go hand in hand with intellectual culture in the education of our youth if they are to be fitted for the citizenship of a free country. Do we then acknowledge that in any sense there is truth in the epithet "*godless*" applied to our Public School system? Are we content to speak of our Provincial system of education, in its Schools, Collegiate Institutes and Colleges, apologetically as a mere compromise or evasion of a difficulty?

This, I assume to be the question which you invite me to discuss; nor do I feel any reluctance in facing it. The system as applied to the Provincial College over which I preside has my fullest approval, and is indeed the only one that can be called truly national. But it is a system designed for the secular training of the rising generation in a community not less Christian than that of the mother country. There, indeed, a constituency has been found to elect an avowed Atheist as its representative in the House of Commons. It may be confidently assumed that no Bradlaugh, however high his intellectual attainments might be, could offer his services to any Canadian, nor indeed to any English School Board, with the slightest chance of acceptance. The moral character of a teacher is indeed all-important, for it is not the formal inculcation of creeds and catechisms, but the daily, hourly influence of precept and example which moulds the character and makes the man.

Here then, I conceive, lies the distinction on which the development of our system of teaching should be based. It is no part of the duty of a Public School Teacher to set forth denominational catechisms or creeds, or in any form to inculcate dogmatic theology. It is no disparagement to him to say he is not the fit person for such dogmatic teaching. All matters of special denominational diversity of opinion; questions relating to the sacraments, to church order, ministerial or priestly authority and power, in so far as they are in any sense a fit part of youthful education, pertain to the home-training, the Sunday school, or to other church organizations. The attention now paid to Sunday school work is one of the most healthful features of the age; and to the Sunday schools of the various denominations may be safely confided the training of their own children in all which they specially value as distinctive in creed and church order. But much still remains as the legitimate work of the teacher in the Public School.

The best of all moral culture is the informal teaching which goes on in the daily and hourly intercourse of the teacher with his pupils. If he has the lesson of love and constraining moral power in his own heart he cannot fail to communicate it to them. "It droppeth like the gentle rain from Heaven upon the place beneath." It is by teaching such as this that men like Arnold have left an enduring impress on a whole generation of Englishmen, while their memory is cherished with loving gratitude. No Parliamentary enactment, no school law, no Board of Trustees, nor Minister of Education can interfere with you or prevent such vital moral training, were they so inclined; and the School Board which looks beyond the evidence of University Honors, First Class Certificates and Testimonials of Acquirements, and insists, above all, on having a teacher of such high moral qualifications as ought to pertain to the man or woman who is to have the moulding of the character, and the forming of the minds of their children, only shows thereby a proper sense of its responsibilities.

Canada is a Christian land. The parents of the rising generation desire no godless education for their children, and will gratefully recognize the services of the teacher, who, animated by a sense of the high trust confided to him, is ever ready on the daily occasions which offer, to drop the wise and seasonable word. Speaking, as I now am, to teachers, I need not remind you of the art of instilling information. The gentle admonition, the tender, loving rebuke, the word in season, will do more to form the future man than all the formal dogmatic routine of enforced lessons. A boy is reported to have responded to his Sunday school teacher's question, "What is persecution for righteousness' sake?" with the answer, "Being drove to school, and being drove to church!"

Not in formal routine, nor by enforced coercion, were God's statutes to be instilled into the youthful mind. "They shall be in thine heart," is the first requirement, "and thou shalt teach them diligently unto thy children, and shalt talk of them when thou sittest in thine house, and when thou walkest by the way," etc. And cannot you, in like informal, yet genial fashion, drop here and there the good seed as you go the rounds of daily scholastic toil? No one will object to your teaching courtesy; good manners; making your boys gentlemen. But the Christian is the true gentleman. The whole essential essence of true gentlemanly conduct lies in the golden rule to prefer another to yourself; and beyond this, in the example of Him who "came not to be ministered unto, but to minister, and to give his life a ransom for many." I address you as fellow-teachers, and would urge upon you that we cannot place too high a standard before ourselves, or overestimate the influence of our office as the instructors of the rising generation. To the teacher who recognizes in his daily work nothing beyond the impressing on the minds of his pupils correct orthography and syntax, accuracy in numbers, a facility in languages and a mastery of Euclid, the return of the same routine from year to year, can scarcely fail to become a wearisome task-work; and if so, then success, in any very high sense, is beyond his reach. A teacher, as you well know, if he is to succeed must have his heart in his work; must feel it, however laborious, to be a pleasant duty. But if he realize fully the unquestionable truth that he has to a large extent the fashioning of these youthful minds, not merely in intellectual culture, but in moral worth, in purity of thought, in truthfulness, manly sincerity; in all that makes the good citizen; he will then feel encouraged through many a weary hour, even as the husbandman who in the early seed time is gladdened with the hopes of a rich harvest in store for him. The gentle poetess, Mrs. Hemans, in her visit to a girls' school, as she looks on

"Childhood's lip and cheek
Mantling beneath the earnest brow of thought,
Sees there what earth must nurture for the sky,
What death must fashion for eternity."

In all the fashioning for a higher life, both here and hereafter, the teacher inevitably bears some part. It rests with himself how great and how beneficial a part he has taken in giving a healthful bias to the eager, impressible minds left from day to day in his care, like clay in the hands of the potter, to fashion into vessels of honour or dishonour.

Trinity College, Dublin, is now adorned with a fine statue of Goldsmith; but had schools and colleges done all for him that they might a richer harvest would have been reaped from his genius, and a happier life secured for himself. Oxford will rear no monument to Shelley, for it is her shame that with that fine genius given her to train in the critical years of early manhood, she had no better antidote for the speculative doubts of a young inquirer than expulsion. It is with me from year to year, a thing of intense hopefulness to scan the array of youthful aspirants who matriculate at college. Who knows but there may be a Goldsmith or a Shelley among them, for whose intellectual and moral training we shall yet be called to give an account.

I was originally asked to take as the subject of this address to you "The Bible in the Public Schools." I preferred the more comprehensive title of "Religion in the Schools." As to the daily reading of the Scriptures, and the opening and closing of the school with prayer, the recommendation of their use "with a view to secure the Divine blessing and to impress on the pupils the importance of religious duties, and their entire dependence on their Maker," was embodied in a regulation of the late Council of Public Instruction, and is still in force. But a discretion is wisely left with the Trustees or School Board, to whom this is only presented in the form of a recommendation.

This question receives interesting illustration from a case appealed to the Minister of Education in 1877. The practice had been to open the school daily with the Lord's Prayer and to close with the Benediction. Certain Roman Catholic children, acting under the directions of their parents, refused to stand up along with the other children during those brief and simple religious exercises, and with the very limited accommodation of a rural school there was no other room to which they could retire. The teacher insisted on their standing up, the trustees sustained this action of the teacher, and the inspector on being appealed to evaded the difficulty by stating that "if any objected the law provided that they might retire," which in this case meant to turn out of doors daily, in all weathers.

I confess to a difficulty in believing that this was a case for appeal to the Minister, or to the letter of the law. I have had a great deal of intercourse with both clergymen and laymen of the Church of Rome, and have had students of that faith under my care. I can scarcely doubt that a wise conciliatory course on the part of the teacher, if he took the trouble to appeal to the good feeling of the parents, would, in such a case, remove all difficulties. Members of the Roman Catholic Church have no objections to the Lord's Prayer, but both Roman Catholics and Protestants resent coercion, and in such a case as that referred to no less evil would be done to the Protestant than to the Catholic pupils, either by enforced conformity or by any demonstrative dissent. If the moral and religious influence aimed at by the teacher exhausted itself in that brief daily service, and all the interval was nothing more than a literal effort at the prescribed tasks in the authorized text books, then it would, on the whole, be better that the Lord's Prayer be omitted altogether than that it be made the occasion of strife and sectarian division. Few things are more to be deplored than that either by Separate Schools or by denominational separation in our Public Schools the elements of sectarian antagonism should be prematurely developed in the minds of the rising generation before they are able to form an intelligent judgment on the questions in dispute.

As to the use of the Bible in our Public Schools I will only add that, in any school section where the entire community are so far of one mind that, without causing offence, the school can be opened daily in accordance with the recommendation of the Council of Public Instruction, with the reading of the Scriptures and prayer there can be, no question as to its desirableness. But my own early recollections of the Bible as a school book do not greatly incline me to insist on its use as a "Reader" or lesson book, especially if by so doing a barrier is to be raised against the free use of our Public Schools by Catholic and Protestant alike. But where there is a teacher of high principle with the constraining love of Christ in his heart, neither school regulations nor Acts of Parliament can shut out the Bible from the school, for its precepts will be hourly on his lips and its principles in all his actions. It is no less important to add that we may feel well assured that neither Roman Catholic nor Protestant parents have any desire that such precepts or such principles should be withheld from their children.

There need be no clashing between the functions of the Christian minister and those of the school teacher; nor between the distinct and diverse work of the Sunday and the Public School. But without trenching in the slightest degree on the functions of either, the Bible is full of delightful lessons which the wise teacher will not fail, whether formally or informally, to turn to account.

The Christian morals taught at our Public Schools should be altogether distinct from questions of Sacramental Grace, of Baptism, or the Eucharist. Questions of grave importance on which the Churches of Christendom are at issue can find no proper place in the national school system of a free people. But is there no such apt lesson as "Consider the lilies of the field how they grow;" or that of the sparrows—now no strangers in Canada—"not one of which falleth to the ground without the will of our Heavenly Father;" or the young ravens that "neither sow nor reap, neither have they storehouse nor barn, and yet God feedeth them;" there is "the rain coming down on the mown grass;" "the hen gathering her chickens under her wing;" the good shepherd leaving his ninety and nine to go in search of the lost sheep; and all else of moral beauty and wisdom so aptly fitted to the young mind eager for knowledge, open to all impressions, and receiving the bias for good or evil on which the whole future life so often depends. He must have little in him of the true teacher who cannot turn to account the parable of the wise and foolish builders; or the story of the unforgiving servant; or the buried and useless talent.

All this, if done as the man or woman possessed of the true teaching faculty well knows how to do it, instead of involving any wearisome sermonizing, will give a life and charm to the whole work of the day.

Nor need he pause on the threshold of higher moral lessons. He too may claim as his own that of the wondrous boy disputing with the doctors in the Temple; of the little child set in the midst of His disciples; or the exquisite story of the prodigal son, so tender in its touching beauty and power. These, and so much else in the lessons of the Great Teacher lie fully within the legitimate compass of your daily work. There is the Lord's Prayer—catholic in every sense—"Thy will be done on earth as in heaven;" "give us day by day our daily bread;" "forgive us as we forgive;" "amid temptations deliver us from evil."

In all this there is surely ample room for a Godly National System of Education which shall trench on no denominational creed or dogmatic teaching. Let me add that a manly courage in the confession of an honest belief may, with those whom you are now training, be largely influenced by your own example. If we never drop a hint of our belief in the divine fatherhood of a personal God, or our recognition of His rule and governance, but speak only of force, law, evolution or nature, such silence, be assured, speaks volumes. You cannot silence the teachings which such negation conveys.

I have referred to the lofty moral precepts and to the apt lessons of the parables of the New Testament as available to every teacher. But also, in an equally unobjectionable form, the skilful instructor will find many a suitable occasion to turn to account the lessons of Christ's own miracles; His stilling the tempest; His feeding the multitude in the wilderness; His speaking the word of power that healed the servant of the believing centurion; the responsive faith of the man with the withered arm; the ten lepers—one only returning with gratitude to the healer; the daughter of Jarius; the widow of Nain; the brother and sisters of Bethany.

But above all let me again say, we must teach by example. Let us apply to ourselves the parable of the talents, for the use of which an account had to be rendered. We, as teachers, hold a stewardship with no mean responsibilities. On your training may depend the moral standard by which the commerce of our young country shall be regulated, or that by which our future statesmen shall mould the decrees of our legislature, and inaugurate that righteousness which exalteth a nation. Your influence as teachers is enormous if you use it wisely. The minds of a young generation are submitted to you, unstained as the parchment on which you write what can never be wholly effaced; impressible as the wax by which its attestation is sealed. Ever remember how wonderfully observant children are. You teach them, whether you will or no, by your daily life, in word and deed. Every display of temper; every tampering with the strictness of exact truth; every rude act or irreverent word, is so much of tares sown among the young wheat, to grow up at times rankly and choke the good seed.

Dr. Arnold, one of England's model teachers, not only cultivated the utmost exactitude of truth ; the yea, yea, and the nay, nay, even in trifles, but he repelled all asseveration in support of any statement made by a pupil, until at Rugby every boy abhorred the disgrace of telling Dr. Arnold a lie, because, said they, "*he will believe us.*" I need not tell you that this arose from no easy credulity, but from the astute foresight which by refusing to admit of the assumption that a boy would lie, made falsehood disgraceful and mean.

I will only add in conclusion that while I heartily sympathize in the daily reading of the Scriptures in our Public Schools, where it can be done without offence, not as a lesson book, but reverently as the Word of God and the inspired embodiment of the Divine law, given to us to be "a lamp to our feet, and a light to our path." I would not necessarily limit it to this. I have great faith in conciliatory co-operation, and it would seem to be by no means beyond the range of probabilities that a selection of approved Scripture lessons, unobjectionable to Catholics and Protestants, might be determined on for such a simple daily school service. Nevertheless I do not regard this as an essential feature of our Public School system, nor its absence as constituting any real impediment to the conscientious instructor legitimately using his influence, and inculcating anew the lessons of the great Teacher :— "Blessed are the merciful ; the peacemakers ; the pure in heart." More than eighteen hundred years ago He abrogated the law so truly accordant with our innate instincts : "Thou shalt love thy neighbour, and hate thine enemy ;" yet the perfect law of love needs, no less than of old, to be still repeated. Rarely indeed will the day pass in which, with gentle, kindly words, it may not be the privilege of the teacher to practically enforce the law of kindness, of forgiveness, of disarming with gentle word and deed those "who despitefully use them," that so you may urge on your pupils in the words of the great Teacher : "that they may be the children of your Heavenly Father, who maketh His sun to rise on the evil and the good, and sendeth rain on the just and the unjust."

THE RELATION OF THE WILL TO THE INTELLECT IN EDUCATION.

ABSTRACT OF A LECTURE BY S. P. ROBINS, LL.D.

He that would answer the question, In the sphere of Education how does the will stand related to the intellect ? must be prepared for two things First, to say what is this marvellous complex of material organs, instinct with life and aglow with spiritual fire, which we call man. Secondly, to trace the mysterious course of development along which an infant advances until in physical powers, in refined sensibilities, in a richly endowed intellect, and in a disciplined, yet unconquerable will, he becomes an educated man.

To answer the question, What is man? each must know himself. For each to himself is the measure of the universe. The maxim of Thales, "Know thyself," is both the earliest and the most imperative command of philosophy. Only through our knowledge of ourselves can we understand others. We immediately know ourselves, but others are but mediately known, are mere shadows on the wall, thrown from unseen realities. The pleasures, pains, hate, love, sensations, conceptions, desires, determinations of others, are intelligible only because we ourselves enjoy, suffer, hate, love, feel, think, hope, and endeavour.

What then am I? The great central fact of my being is consciousness. I feel and I know. This is an ultimate fact of my being of which I can give no account. But I do not merely passively receive into the sphere of consciousness influences that originate beyond me. In the external world I see the inevitable and fateful play of laws of cause and effect. But I am conscious that I lie outside the operation of these laws. I am no mere transmitter of influences from without. I am a first cause. I will and do. This, too, is an inscrutable, unaccountable, ultimate fact, admitting neither analysis nor explanation. Here then are two inexpugnable facts: I am conscious, and I will.

One of the earliest data of consciousness is the possession of a body existing in space, acted upon by its environment in many ways which are distinctly and successively recognizable by me, and so directed by me as to react upon the external world. It has in relation to me two functions. It is the servant of my consciousness, and it is the servant of my will. It is the passive recipient of manifold impressions from the material world, so that by it alone I am conscious of the existence and properties of a world exterior to me. And again, it is a part of the objective material world mysteriously subject to my will so far as this, that I can compel its members to take different positions relatively to each other. This power, and this only, has my will of revealing itself in the material world. I can move the body, and so can experiment upon the course of Nature, and can compel her unconscious forces to do my bidding.

The question here emerges, How far is the education of the intellect an education of the bodily senses? There is but one intellectual act, perception, which is directly dependent on the senses. Perception when analyzed shows the following elements:—

1st. The production of an impression upon the organ of sense. This is purely physical, and is commonly quite intelligible.

2nd. The reception of this impression by a nervous structure and its propagation to the brain along a nervous tract. Of this we know very little more than the microscopic structure of nerve and brain, and the rate of propagation through the former, the mode of reception and of propagation being quite unknown.

3rd. An act of the mind by which it receives, selects, interprets, remembers the reports furnished by the brain.

4th. An act of the mind by which it directs the organ of sense in its investigation, through the subservience of the muscular system to the will.

Where amid these four elements lies that susceptibility to education by which the perceptive powers are improved? Not in the first and second particulars, but in the third and fourth, as is shown by an examination of perception through any sense. Take sight as an illustration.

First, there is the formation of a picture representing surrounding objects by the perspective projection of their forms, with appropriate hues and shades upon the retina. Upon the formation of this picture no system of training can produce an effect. Sometimes the picture is distorted in form, or is improperly focused upon the retina by some malformation or misadjustment of the lenses of the eye; or it is partially obscured or obliterated by some lack of transparency of the tissues; or it is suffused with an unnatural tint by some diseased colouration of the fluids. In any of these cases all that the educator can do is to guard against such misuse of the eye as would tend to produce or to aggravate these evils.

Secondly, the retina takes up the picture and the optic nerve reports it to the brain. As education cannot produce a sharper, clearer or more vivid picture on the retina, so it cannot cause the optic nerve to report that picture more faithfully. Some part of the nervous tract may be paralyzed or disorganized more or less extensively. It may be incapable of receiving or of conveying certain colours. In none of these cases does education avail. In the sensory and nervous apparatus of sight education cannot remedy defects nor increase the original keenness; except that judicious use favours the health of every organ through the exquisite adjustment of supply and repair to need, and that we may be taught to avoid such disuse or improper use as leads to disease.

But, thirdly, the reception, interpretation and retention of the picture is an act of the mind which, as all experience demonstrates, may by diligent and wise discipline be improved to a surprising extent in the rapidity, accuracy, fulness and permanence with which it is accomplished.

And, fourthly, the use of the eye as the mechanical organ of vision is the result of many nice muscular adjustments, some of which, being automatic, cannot be improved by training; others, being subject to the will, are capable of being trained by the discipline of many directive acts to more prompt and precise obedience.

If we are to decide upon a wise course of training for the senses, it is clear that we must inquire into the laws of the psychology of perception rather than into those of the physiology of the senses. The only laws for the guidance of education that the physiologist can furnish are, on the one hand, certain prohibitory laws, the infringement of which lead to harm and pain ; and, on the other, one law of positive action that such use of any organ as is not fatiguing conduces to its well being and efficiency.

Psychology is in relation to education both more important and more interesting to the teacher, for it suggests most valuable rules for his practical guidance.

It has been said above that one of the earliest data of consciousness is the possession of a body existing in space. But intimate as is the connection between this body and myself, thought cannot blend them into a single conception. Consciousness distinctly separates between my body and myself. One ground of this distinction I find in this, that extension—space—is not a condition of the existence of the I myself of which I speak. Time—duration—is a condition of all existence ; space, of material existence only. Feelings, thoughts, volitions, have no length, nor breadth, nor thickness. The physical world is conditioned by extension and duration ; the psychical world by duration alone. Consciousness then distinguishes the I myself as unextended from the body, which is the instrument I use, and which has extension.

This unextended I myself it is that passively is conscious and actively wills. But consciousness sometimes merely recognizes the affections—states—of the subject, in other words it feels ; or it distinguishes between the subject and object, in other words it thinks. Hence the threefold manifestation of myself. I feel, I think, I will. So all the powers of my mind are divided into sensibility, intellect and will.

It is to be remembered that I myself am one and inseparable. The whole mind thinks, the whole mind feels, the whole mind wills. All these it does not always successively, but sometimes simultaneously. From this essential oneness of the mind it will be rightly inferred that there exists a relation, intimate, important and inerasable, between the intellect and the will, and that it will be impossible in tracing that relation to ignore the common relation of these faculties to feeling.

My will is I myself originating action. Its sphere of influence is both physical and psychical. In the physical world all that I can do is to contract my voluntary muscles. In the psychical world I can control thought in four ways. 1st, I can direct my mental operations by my control of the muscular system. I can bring into use any one of my sensory organs. I can place myself amid surroundings specially favourable to my desired train of thought. 2nd, I can reject one impression of sense or suggestion of recollection after another, dismissing them as irrelevant. 3rd, I can detain before the mind such impressions or suggestions as I wish to examine more closely. 4th, My will can choose from certain formal schedules of knowledge which my mind has acquired in the course of my education. Most of the thinking of an educated man is the application to the matter in hand of one or another of these familiar schemes.

Will, in so far as it is conscious effort, tends to its own effacement. Every repetition of an act makes the act more easy, more effective, and at the same time less conscious. At last the most complicated and exact operations of body and mind come to be effected with unconscious ease. The act has become habitual. The formation of correct habits of carriage of body and of mind in his pupils is the most important of a teacher's duties. It can only be done by enforcing frequent repetition of proper acts, performed in the right way, always remembering that fatigue delays the formation of correct habit.

Will is weak in childhood. The paroxysms of obstinacy, strong as madness, sometimes exhibited by children, are usually a paralysis of will through terror and pain. For the resistance is always silent, sullen, passive. It is an apparent refusal, a real inability to do, never so far as I have seen, a persistence in doing. Strength of will is shown in doing when difficulties are great, when effort must be prolonged, when solicitations to cease are instant, and when ends sought are remote. The will of a child cannot continue to act against pain. It yields easily to fatigue. It cannot resist distractions. It needs present motives.

The effort of will expended in accomplishing a given result can only be rightly estimated when not only the result but the resistance against which the work is done is considered, that resistance being the excess of all dissuasive above all soliciting motives. When in school work we make the tasks of pupils pleasurable, we are diminishing the resistance, and rendering possible greater attainment without increased cost. Every increase of motive towards, every diminution of motive against, labour not merely renders the performance of that labour more probable, it diminishes the expenditure of effort; it helps will. The child is in some respects at a great disadvantage in that work of preparation which is his duty in life. He is labouring for results that are not only valueless to him because of his inexperience, but that are to him too remote to be regarded. The countervailing advantage of childhood is that its wavering impulses and feeble endeavours are steadied and strengthened by the mature will of parents and teachers.

Now, submission to kindly authority is not merely salutary, it is pleasant. A well-governed child is delighted in and by his obedience. The influence of a wise, loving, inflexible authority is an immediate motive, helpful to the weak and vacillating purposes of childhood to a degree so great that it stands in place of that greater power of comprehending future good, and of representing it clearly and forcibly as a present motive that belongs to the matured mind of a man.

Duration is the universal condition of existence. Throughout the world of being to affirm of anything that it has existed in a point of time only, is precisely the same thing as to deny its existence altogether. Existence is conceivable only as protensive. From this condition consciousness does not escape. Consciousness exists only as it endures. An impression that perishes as it is produced is all one with no impression at all. Retentiveness is then an essential property of consciousness, and therefore of that special form of consciousness which is called intellect. But clearly another essential property of consciousness foreruns retentiveness. Impressions must be received in order to their retention. We may conceive a consciousness that is now retentive only. But, though now insensible to or oblivious of impression, once, if but once, it must have been receptive. To us, whose consciousness daily enlarges its sphere, receptiveness is as conspicuous a property of consciousness as is retentiveness. It is obvious that so far as it can be revealed, consciousness in general, and with it the intellect in particular, will be known when its laws of receptiveness and retentiveness are fully known. And the relation that subsists between the will and the intellect will be disclosed when the relation of the will to reception and retention shall have been shown.

Though not strictly accordant to the order of nature, it will be convenient to consider retentiveness first. Retentiveness, as shown above, is essential to consciousness, and not alone to that form of it which we denominate thought. Impressions of every kind endure in consciousness beyond their exciting causes. This endurance is sometimes a continuous persistence of an impression. Dr. Carpenter gives an instance of this. If the clock strikes while one is immersed in reading, attention may be roused only by the last strokes. Yet the aroused reader, mentally repeating the series of strokes thus, one, two, three, etc., will instinctively stop at the right number. But there is another and more important phase of retentiveness. An impression may have seemed to pass entirely away from consciousness. Yet it is not utterly gone. It lies latent in the mind. Years after it has seemed to disappear it flashes back upon consciousness—sometimes we know not how, sometimes in ways that are traceable. In the latter case some impressions recur spontaneously, others are recalled at the summons of the will.

These considerations present retentiveness as a mental faculty—

memory, yielding its stores spontaneously; reminiscence, or when the will demands recollection.

The laws to be enumerated as governing memory are partly applicable to consciousness in general, whether it be feeling or thought, partly to intellectual operations alone. These laws may be given as three in number.

1. An impression is lasting as it is deep. Some experiences plough up a man's being. They remain for ever.

2. An impression becomes more enduring by repetition. An impression is not usually deeply engraved by one stroke, but if often renewed each repetition will deepen the lines until the footsteps of many years cannot efface them. The repetition that favours retention takes many phases. It may be an immediate repetition of the impression in all respects unchanged. The danger in this case is that the will may be less strenuously engaged in the later acts of repetition than in the first. Hence repetitions are often and advantageously repetitions under variation. Here the danger is that the varying accessory impressions may compete too powerfully with the primary impression. Again, the acts of repetition may be merely mental—a recalling of the impression before it has faded. Or again, repetitions that impress may be separated by considerable intervals of time. It is indeed much better to stop when wearied, and return to a subject when recruited, than to persist in repetitions when attention flags. All these acts of repetition are dominated by the will. It is right to attribute blame to those who forget. They remember anything who are sufficiently interested in it to perform the volitional repetitions needed to give depth to the impression.

3. When able to trace the manner in which a latent conception rises before consciousness, we find it to be linked by a common element to some conception that immediately precedes it in consciousness. Whatever conceptions have been before consciousness together, or in immediate succession, so cohere that when one is renewed its attendant conceptions emerge with it. This is association of ideas. The conceptions linked in consciousness are not necessarily associated in the nature of things. Associations may be arbitrarily made by others, as in the learning of our mother tongue; or they may be made mentally by ourselves, as when I firmly fix in my mind together conceptions of some business and of the man with whom it must be transacted, so that my next accidental meeting with him may suggest to me my opportunity. The will thus establishes beforehand such mental associations as are likely to be serviceable, so that a need and the resource that meets it linked together arise in conception together. Education forms such chains of association in the minds of the young as the experience of their elders has shown to be valuable. No effort of will can recall anything unless the links of conception have been

pre-established, and one end of the chain be in hand. Hence, for convenience and certainty of recollection, the utility of binding by many connections each important fact to every related fact.

We now approach our last topic of consideration. How do we receive impressions? and how is receptiveness related to the will?

Professor Bain, to whom I am much indebted for his original and simple analysis of mental operation, has said: "The real fundamental separation of the powers of the intellect is into three facts, called (1) discrimination, the sense feeling or consciousness of difference; (2) similarity, the sense feeling or consciousness of agreement; and (3) retentiveness, or the power of memory or acquisition." And again, "It can be easily made apparent that discrimination is the very beginning of our intellectual life." According to these views of Dr. Bain, then what we have called receptiveness = discrimination + similarity, discrimination being the first act of the intellect. To this I cannot but demur. Both discrimination and similarity imply previous knowledge. Discrimination is a separation between similarity, a partial identification of two conceptions, one at least having been previously entertained and remembered. I know no better name for the act by which the necessary first conception was received than the word intuition, so long in use with similar meaning. I feel compelled to assert that conceptions are received by one primary act of the mind, intuition, and two secondary acts, implying memory of the results of intuition, discrimination and identification.

Intuitions are usually complex. The external world appeals to our several senses, and to each in distinct ways, not necessarily successively but often simultaneously. These complex presentations we disentangle by an act of analysis separating out the distinct elementary notions. But what are elementary notions? How do they agree? How do they differ? The answers to these questions must be brief, and cannot here be argued.

An elementary notion is the notion formed in the mind in response to a stimulus that travels to the brain along a single nervous filament. The notions formed in response to successive excitations of that single nervous filament are alike in kind—they may differ in degree. But there are many nerves capable of conveying precisely the same report to the mind. Whether I touch a given surface with one finger or with another, the mind receives precisely the same information. There are then many nerves of similar office, and we may found identifications on the reports of these similar nerves. There are, however, nerves which, by reason of their terminating in different sense organs, are incapable of responding to the same influences. Moreover, they do not report to the same part of the brain. They are dissimilar nerves. The conceptions formed in answer to their excitation are totally unlike in kind; they can in no way be united by gradation. To blueness and shrillness there is nothing in common—one conception being in response to the excitation of an optic filament, the other to that of an auditory filament.

When a filament reports variously in succession, conceptions of number and of arrangement in time arise. Every sense, therefore, gives these conceptions. When two or more nerves of similar office report distinctly and simultaneously, conceptions of arrangement in space arise. Touch, including muscular sense and sight, these two only, give conceptions of arrangement in space—that is, of shape, size and motion. Each particular sense gives us its own peculiar information, in relation to which none other can replace it. Taste speaks of sapors, smell of odours, hearing of sounds, touch of temperature, muscular sense of resistance, sight of colours.

Number, sequence, shape, size, motion, taste, smell, sound, temperature, resistance, colour, in their several varieties and degrees, are elementary notions, and exhaust our knowledge of the external world.

All these are received in conscious distinctness when we by the will direct the mind successively to the several impressions of sense. When the will thus uses the senses, sensible objects are analyzed, and this is the only ultimate analysis of an object possible. The results of this analysis are abstractions. It must be remarked that all acts of the mind, except the reception of intuitions through the senses, can be performed with only our recollection of the object before us.

It is evident that analysis—the forming of abstractions—is conditioned on will. One mind loosely holds vague and uncertain impressions. Another has firmly grasped clear and sharply cut conceptions. Both may possess acute senses. Both have minds capable of perceiving—looking out through—the impressions of sense. Both were originally gifted with the power of orderly self-direction which lies at the foundation of precise analysis. But one will has grown strong, being daily exercised in choosing and rejecting impressions; the other will has been enfeebled and grown torpid through long disuse.

Abstractions are retained in memory if the original impression be deep. This depends on the strength of that act of the will that shuts out all competing impressions. But if, through distractions, the first impression be faint, it will be deepened by every repetition. In every act of careful thought abstractions recur again and again. Once having been distinctly presented to consciousness, all the experiences of life renew them. The difficulty is to keep them distinct, and this is secured by the giving of a name to each abstract conception. Every teacher should see that each child is furnished with a vocabulary accurately expressive of every distinct abstract conception given by sense. In relation to early education, the most important of all schedules of knowledge is a scheme, with names, of the senses and their capabilities ; and the most important discipline of the will in relation to the acquisition of science is practice in the systematic and exhaustive use of the senses in the acquisition of intuitions.

Discrimination is the recognition of difference ; it may be difference of kind, it may be difference of degree. Obviously our power of discriminating complex phenomena depends upon our power of separating out and discriminating between differing elementary phenomena. The discrimination of kinds is easy to him who possesses all his senses. It is not diffcult to see that one phenomenon has an element which another wants. Nice discrimination consists in distinguishing minute gradations. For this there appears to be a certain original power proper to each individual, and dependent on the excellence of the organ of sense. This physical endowment does not seem to be susceptible of improvement by cultivation. Education, properly so called, does not improve the physical organ. It teaches and trains the mind to use that organ to best advantage. It teaches, that is, it gives information respecting the best state of the sensory organ and the most favourable conditions of employment. It informs us that for acute discrimination the body, and especially the nervous system, must be well nourished and in health; that the organ of sense must be bright and fresh, not overtasked by previous exercise. It teaches us further, that the most favourable conditions of use are the removal of all competing impressions, and the bringing into close proximity in time and space the impressions to be discriminated. But education trains to discrimination by a discipline of the will in causing discriminations to be made over and over again under judicious direction, until accurate discrimination has become habitual. For the will can secure the best external conditions in accordance with instruction given. It can by its own power exclude competing sensations by refusing to attend to them. Thus it sets itself in direct opposition to the tendency of great and sudden differences to preoccupy the mind. Victorious over distractions, it brings into prominence shades of difference undiscernible by the untrained, holding up before consciousness continuously the phenomena to be discriminated.

Identification is the recognition of common elementary abstractions in two complex intuitions. It rests upon analysis even more strictly than discrimination. For two phenomena might be discriminated by the totality of the impression made by each, but identifications can be effected only by the recognition of unity amid diversity. The element of retentiveness is far more prominent in identification than in discrimination. This necessarily. For differences are always established between two. Identifications unite many. An act of discrimination is final. An act of identification is only preparatory. The similarity we at first detect in two things we by subsequent observation find in three, in four, and so on in an aggregation that is never final. So the memory holds as many threads of unification on which to string our accumulating experiences as there are separate abstractions possible to the mind. Again, each of these separate abstractions noted in our identifications serve as links of association to recall together the several phenomena in which they occur. In other words, like things form coherent groups in the mind. We classify. We substitute conceptions of these groups for the too numerous conceptions of individuals; and so we relieve the memory of a burden that otherwise would become intolerable. Still greater is the relief to memory when we observe, as we constantly do, that our groups have many common conceptions. Then we generalize. And many such generalizations being made, each group is recalled by many associations. In still another mode retentiveness and identification are bound together in a special relation. While we discriminate better with objects themselves before us, we frequently identify better when dealing with conceptions of things. This largely arises from the tendency of differences to obtrude upon and preoccupy the senses. But differences fade and identities become relatively more conspicuous in our conceptions of things.

Rightly has identification been regarded as a higher exercise of mind than discrimination. It engages the analytic power more thoroughly, and exercises memory in a much higher degree. Besides, the results of identification constitute the great and ever-increasing body of truth that belongs especially to ripened culture.

All that has been already said respecting will in relation to analysis and retentiveness applies to identification, and need not be repeated. But the just combination of these faculties in identification must be secured by training. Pupils should be exercised in tracing resemblances between things when differences are not great, increasing the difficulty by proceeding to phenomena that have fewer points of resemblance, and these the result of abstractions not readily made by the untrained mind, as, for example, order in sequence. Such identifications extended to an increasing number of objects must be formally entrusted to the keeping of memory by giving names to classes. The precise use of words is a cultivation of this faculty.

In concluding abruptly, I may be pardoned for saying that I should have liked to resume the conclusions I have reached in such slightly different form as would have accommodated the classification of mental powers adopted by Sir William Hamilton. But the facts to which I have endeavoured to direct attention are independent of any particular terminology of mental science.

The conclusions I have reached will doubtless be canvassed in the light of the intelligent experience of my auditors. Nothing could give me greater pleasure than to learn the results of your thought, for I am much of the opinion that education will be advanced intelligently only when we, as teachers, learn to read the mental habitudes of our pupils in the light of our own consciousness, and bring our individually contributed observations into a common fund—a fund that in the aggregate will be priceless, although no separate offering be large.

PHYSICAL EDUCATION.

A. H. MORRISON, GALT.

All educational processes may be classified under four heads: Physical, which relates solely to the development and training of the body; Intellectual, which embraces those operations necessary for the proper cultivation of the mental powers, so that their possessor may be enabled to fight the battle of life with success to himself and with profit to his kind; Moral, pertaining to the duties of life considered from a social standpoint; Religious, treating of the doctrines of creed, the relationship existing between man and his Maker, and the nature of the service deemed essential to be rendered to Deity by this or that section of humanity. Now, I have arranged these four subdivisions in the above order advisedly; great desideratum as an enlightened and tolerant religion must ever be considered, the religious instinct is not the first developed in man; our creeds are not formed by intuition, but by habit; the masses are not Christian, or Mohammedan, or Pagan through conviction, but by teaching; they are in ninety-nine cases out of a hundred what society or their parents make them. So morality is but a minor phase of religion, a social creed which is the foreshadowing of a Divine One and the outcome likewise of education: in a Christian community forgiveness is considered a virtue, but in a savage one revenge is not reckoned a vice. I doubt whether a South Sea Islander is troubled with any scruples of conscience when feasting upon missionary *à la mode.* Again, intellect must be developed before either morality or religious sentiment can be appreciated; to the mentally unsound all creeds are alike, all forms of morality equally incomprehensible and null. Lastly, I think it not too much to say that without physical wellbeing neither intellectual, moral nor religious perfection is possible. A sound mind in a sound body is an aphorism as old as the everlasting hills, and there is a deep truth contained in the sentiment which all who run may read, for it points to the inevitable conclusion that without a sound body absolute mental, moral or religious wellbeing need not be expected. Is this statement borne out by fact? Cases have been known where, with loss of corporeal vigour, mental activity has degenerated into helpless imbecility, moral rectitude been dwarfed into ethical apathy, and religious fervour supplanted by enervate infidelity or perverted into mistaken sectarianism or fanatical persecution. Every rule has its exception. There is an old saying, the exception proves the rule: there may be a sound body and an unsound mind. On the other hand, I cannot but admit that many of our grandest intellects have been housed in emaciated and suffering bodies. Perhaps the very nature of vast and comprehensive intellectual research necessitates in some measure this condition ; but consider what misery is entailed—how very many great men have been eccentric, singular in their notions and habits, crotchety, dyspeptic, morose, fanatical ; and might it not be possible to trace much of this irregularity of disposition to an abnormal condition of mental being engendered or aggravated by disordered bodily systems ? Were I to compile a dictionary, I would not hesitate to represent indigestion and ill-humour as interchangeable terms, nor fear to designate persecution by its lawful synonym, bile. Consider some results of physical neglect or abuse, as illustrated by modern biography, Byron, Kirke White, Keats, dying almost in their boyhood, at least before their prime, worn out by their passions or their folly in overtasking nature—for I deem that a man who abuses his intellect abuses his body—it is the body that dies as the result of mental abuse, not the intellect ; that, if we are to believe Scripture and revelation, survives—for what would the soul be without the intellect ? Here are Milton and Prescott stone blind through inordinate application to study. There, Johnson, with his wonderful learning, a hypochondriac, the result of a diseased infancy and a habit contracted in maturer years of devouring food like a wolf and absorbing tea like a maelstrom. De Quincey, that transcendent intellect, master of English prose as he was, drugged, enervate, almost demented from the effects of opium. Swift dies insane, Cowper becomes a melancholy enthusiast, Hugh Miller and Chatterton commit suicide ; Poe, Rousseau, Shelley, Savage, Scott, Burns, stars of the first magnitude, often eclipsed by the clouds of mental and physical suffering. Napoleon, we understand, lost a victory by partaking too freely of a shoulder of mutton stuffed with onions ; and Nelson, who was more than peculiar, could not, I imagine, have been blessed with a very vigorous physique. Is it too much to say, think you, that much of this morbid peculiarity and sensibility of temperament was the direct result of ill-regulated physical appetite, or positive physical neglect or abuse ? To-day might not much suffering be averted, lives even be spared, by a judicious exercise of the reasoning faculties and a careful attention to bodily welfare ?

Man is born a passive agent ; he comes he knows not whence, his end is he knows not where ; neither beginning nor end are as yet to him appreciable facts. His mental activity has not yet been awakened nor his moral nor religious feelings aroused. The instinct of a physical want is the first instinct developed—it is the first law of nature. The babe cries and makes strange grimaces, or indulges in queer contortions of limb—observe, not because his sensitive and orthodox prejudices have been shocked by the innovations or eccentricities of sectarianism. Not because, having been born an aristocrat and conservative—for all babes are aristocrats and exclusives, even those with pug noses, and conservatives, for they make stentorian clamourings for maternal protection—their political feelings have been outraged by the radical tendencies of cradledom. Not because his language, being as yet nascent, perhaps hybrid, has been misconstrued by the philologists of the nursery. No ; it is because he experiences ignoble bodily pain, or suffers the pangs of a vulgar physical appetite, and these need assuaging. Look at our nursery hero and follow him through the ailments of babyhood—the diseases incidental to a maturer infancy and the accidents of youth. Does Madame Grundy complain of her nursling's want of intellectual precocity ? No ; all her thoughts are centred in the colic. Does Mrs. Gamp fret over the heretical proclivities of her embryo agnostic or latitudinarian ? Not at all ; her one idea is the cutting of the first tooth. Through what agency does the babe receive his first instructions, and of what do those instructions consist ? His earliest schoolmaster is nature, installed in the sanctum of self ; his earliest teachings, the results of promptings which are emanations from the simple presence of that same instructor. He stretches his limbs, gapes, opens wide his wondering eyes, snatches huge handfuls of airy nothingness, and environs with circling arms the boundaries of indefinite space. His physical instincts are so grandly and precociously developed that he attempts *per force* to eradicate at one fell swoop every hair from the unhappy head of his much-enduring attendant ; sprawling like a Brobdignagian frog on the broad of his back, he makes herculean efforts to insert his great toe into the innermost recesses of his æsophagus, and, supreme and culminating effort of instinctive embryo physical prowess, stretches his puissant right hand towards the heavens and bids to snatch from her exalted throne the luminous Queen of Night herself, doubtless with the catholic and laudable intention of conveying her when captured to that same universal receptacle for childhood's treasures—his cavernous and insatiable maw. Now, what are all these motions and contortions indicative of ? Physical progress. The child wants growth. Activity is his religion, hunger his morality, and the deglutition of his doubled fist or the stomachic interment of his big toe his highest intellectual aim in life for the time being. Before a religious sentiment is formed, a moral attribute developed, an intelligible sound uttered, physical need is felt, muscular force exerted, and animal growth instinctively provided for and attained. The teaching, I think, is plain that as physical need is the first experienced, if the infant is to pass from healthy childhood to robust youth and perfect maturity, this need must be carefully and persistently administered to through life, till at length all necessity for such shall cease with the cessation of the great boon of life itself. Though, strange to relate, even with death physical development and effort only cease to exert an influence so far as self-exertion and individual volition are concerned, indirectly the process of physical effort in connection with this same being goes on. The body has to be removed and interred by alien physical intervention. Physical forces disintegrate the substance of the now inert and mouldering clay, reducing it by chemical analysis to its constituent elements and dispersing these through space. Physical agency at once commences the work of reassimilation. These same elements are once more by sympathetic processes converted into organized fabrics, which live, and move, and develop and exert organic force in turn, thus continuing the process of physical culture in different forms or orders of being, through the circling æons of all time to come.

Admitting the teachings of Holy Writ and the doctrines of Christianity, our souls have been bequeathed us to save, our minds have been entrusted to us to improve, our moral perceptions have been given us to perfect. But the body is the casket of these separate treasures. So far as this world is concerned, and so far as we are cognizant, no soul, no intellect, no moral nature, can exist irrespective of corporeal agency, and therefore I take it for granted that our first and holiest care should be the preservation and improvement of this human form divine, on which the image of animated superiority is indelibly stamped, and without which we cannot even exist as vital, sentient beings.

Speaking from a Public School point of view, I maintain there are defects, and grave ones, in our methods of treating each one of the correlative branches of general education already alluded to. With intellectual, moral, and religious culture here, however, I have nothing to do. With regard to physical training, I think I am safe in saying that in our Public Schools, especially those in country districts, there exists a great necessity for the introduction of some definitely planned and well-conducted system for corporeal development and muscular exercise in a certain direction—I say in a certain direction, for mere bodily vigour, concentrated brute force, can be obtained irrespective of true physical culture in a variety of ways—at the blacksmith's anvil, between the plough handles, swinging the woodman's axe, etc. Physical culture has for its aim higher developments. Strength and vigour unquestionably, but trained strength and systematized vigour. Enduring hardihood certainly, but organized and educated hardihood. Muscular development and physical prowess indubitably, but muscle companioned by grace, and prowess associated with dignity of comportment and elegance of motion. A sledge hammer, though a powerful and a dangerous weapon, is but a blundering and plebeian instrument with which to perform the exploits of a hero on the battle-field. The keen and polished rapier made of tempered steel, which will bend double at a turn of the wrist, has yet strength sufficient to accomplish the same end with infinitely less labour and with far better grace. What are we to understand by physical education? Why, the training of the body irrespective of the mind by certain well-fashioned laws of exercise —exercise which indulged in tends to promote corporeal growth, to strengthen and develop nerve and muscle, to expand the lung system, to enure the body to hardships under which an unseasoned or debilitated frame would succumb, to fortify it so as to enable it to resist the insidious attacks of disease, to make it in short a fit tabernacle for the reception of a strong and useful intelligence, capable of permitting the full exercise of that intelligence without endangering bodily health or mental acumen, able to defend itself in case of need from exterior inimical influences, and while accomplishing these objects to acquire simultaneously grace, ease, dignity, to the end that a healthy human form may be rendered a fit associate of a healthy human mind. I am hardly yet prepared to say whether I do or do not advocate the Darwinian theory, "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy." I, in common with most of my countrymen, confess to prejudices of ancestry. I am willing and ready at any moment to believe that my paternal ancestor in the long ago was John of England, who was a murderer, a liar, a craven, and a renegade; or that I am maternally related to Boadicea, who was doubtless a half nude, wholly uncivilized, vindictive Amazon. Even Bloody Mary, the most despicable woman who ever assumed the English crown, would look well as an eighteen hundred and eighty-first cousin. I am not so certain whether a paternal gorilla or a maternal chimpanzee, however guiltless of treason, bigotry or bloodthirstiness, would fit the easy chair of ancestry as well. But, joking aside, I *am* prepared to admit this at all hazards, that the ourang-outang is the natural effect of a natural cause. That the ourang-outang is at best but a poor mathematician—natural, too, you will say. That the merest tyro of an ourang-outang as an athlete would knock our doughtiest gymnast—if I may be allowed the expression—into a cocked hat, and this, I presume, is natural also. I never heard of an ourang-outang—unless in confinement—suffering from gout, indigestion or the blues—natural again, altogether natural. Nature then is evidently the true mother, the true nurse, the true first preceptress; *ergo*, we should obey the teachings of nature and follow physically the example of the ourang-outang, spend much time in the open air, take a large amount of exhilarating out-door exercise, run, leap, swing, climb; live temperately; religiously, abjure strange gods and the worship of individuals in creeds; socially, renounce class prejudices and backbiting one's neighbours; morally, abolish whiskey stills and their associated evils; intellectually, reject competitive examinations as tests of scholarship, and too much mathematics as an intellectual cultus, and go a step farther, wear a remnant besides our own hair. Pay school teachers decent salaries, and study the humanities, but not to the perversion of our intellects or the deterioration of our muscular systems; of such folly even an ourang-outang would be guiltless.

I must say I am not an advocate for muscular Christianity; I may add, I am no admirer of an awkward, shambling gait. I have been lately led to ponder upon this subject of gait by the strange opinions which, during a residence of three or more years in the country districts of Canada, I have heard time and again formulated by country residents. There seems to be an idea prevalent that a perfectly upright, free, confident carriage; is inseparable from pride and self-conceit. This is no mere fancy; the sentiment has found expression in words over and over again in my hearing. Conversing one day with an old resident, our conversation happened to turn upon a young man of my acquaintance, a farmer's son, who had received a tolerable education, and who was by far the smartest-looking young man about those parts. "Ah," said my companion, "he is too big for his cloth, he walks as if he owned the whole world." The stricture was a most unfair one.

I have not known whether to be more amused or angry at such and similar utterances—promptings of an ignoble or perverted taste. I suppose it has become so much the fashion in country districts for youth to struggle from the cradle to the grave with "lack-lustre eye" and hand in "poke," that anything in the shape of an erect posture, swinging gait, and independent front is looked upon as an abnormal and offensive state of being, a metaphysical challenge to personal combat, or an unspoken assertion of physical superiority, and this because one presumes to lift his eyes above the level of the rut, and prefers to swing his arms in the glorious daylight rather than bury one half of them in the cavernous recesses of his breeches pockets. Now, I would ask, is an erect carriage a fault that it should be thus censoriously criticised by any section of a civilized community? In the beginning God made man, and He made him a little lower than the angels. He made also the beasts of the field. But observe the difference. He placed man erect, firm planted in such a position that without effort or diminution of grace he could lift his god-like front and scan the heavens—the wide-spread epitome of all that is loftiest and most wonderful in the created universe; but the beast, grovelling on all-fours, progresses ever with face to earth, its present home and type of its grosser and irrational nature. Let me here put a leading question. Is an upright, dignified carriage consistent with healthy action? is it a thing to be desired in itself as a mere means of locomotion? With regard to the first point, I unhesitatingly answer that there can be no really healthy action, no physical perfection, without erect, free, open-shouldered carriage; and as to the second point, I think it very much better to progress through life as though unburdened with any particularly heavy load of conscience, than to grope from infancy to dotage in a position which might lead the uninitiated to suppose we were staggering under plethoric sacks of individual iniquities committed in the flesh, weighing us to the earth, or, in the anticipation of our *particular* friends, possibly still lower. I do not think I am using a too severe form of expression when I denounce the carriage of the majority of our country school-going youth as slouching, and this careless, awkward, inelegant gait is obviously the result of a want of proper physical training. Where will you find a firmer tread or better port than in the ranks of the British army? As a stranger and an American has well said, the British soldier has the swing of conquest. He should have said rather, he appears to have the swing of conquest—but it is in reality the swing of the parade ground and the drill shed. Yet from what class are the ranks of the British army largely recruited? Why, from the very class we have now under consideration—young men engaged in rural pursuits, whose gait, as I have had ample means of witnessing, is at least as clumsy and heavy as is that of the occupants of Canadian farm lands. A few months or years under the drill instructor converts the green, shambling, ungraceful rustic into the trim, erect, alert warrior. A wonderful metamorphosis truly, and one which would have been still more thorough had the change been effected in earlier youth. I maintain that the erect position is the normal position of man. When the body is upright, the shoulders well back, the head erect, there is more room for the lungs to perform their office, the limbs fall more naturally into position, the vital functions of every member are more regularly performed, and this erect, easy, graceful, and withal natural and healthy position, can be acquired by training, or can be lost for want of proper culture. I deem that in one sense at least men, with few exceptions, are born equal, with like physical instincts, with like corporeal parts, which can be educated and perfected. Why, then, do we see one man, say at the age of twenty-five, walking like a hero of romance, and another, at the same age, slouching like a Californian hoodlum? Because probably one has paid more attention to physical development, or has at least not been influenced by agencies antagonistic to such; the other has neglected physical culture, or has had to follow a vocation inimical to healthy physical development. It has been a recognized axiom with all great thinkers for many centuries that bodily training should go on concurrently with mental exercise. Montaigne, a celebrated French moral philosopher, who lived in the 16th century, was a strong advocate for physical culture. He says, "We have not to train up a soul nor yet a body, but a man, and we cannot divide him." Locke, again, the author of the *Essay on the Understanding*, advises plenty of out-door exercise with plain food, and condemns the practice of straight lacing and tight clothing. Pestalozzi and Frœbel, the great fountain-heads of popular education, combined, as you all know, intellectual culture with physical exercise in their methods of tuition. And Rousseau, in his Treatise on Education, says, "Nature has destined us for the offices of human life, antecedently to our destination concerning society. *To live*, is the profession I would teach him (alluding to a youth). *Let him first be a man;* he will, on occasion, as soon become anything else that a man ought to be as any person whatever. Fortune may remove him from one place to another as she pleases; he will always be found in his place." It has thus become a recognized principle in all modern educational systems, that no course of instruction can be regarded as thorough unless it includes some provision for the exercise of the physical energies as well as means for the development of the mental faculties.

Granted, then, that physical training of some sort is an absolute necessity in our school curriculum, that the body must be developed concurrently with the mind, how shall we best effect this object?

In the consideration of physical education taken in connection with our Public School system, there are four phases of the subject which should come under discussion:—

1st. Position in school, sitting or standing.
2nd. Change of position in the schoolroom.
3rd. Systematic out-door exercise—gymnastics.
4th. Systematic out-door exercise—drill.

In thus dealing with the subject, I presuppose suitable school accommodation, adequate ventilation and every necessary appliance for at least personal comfort and healthy in-door action. I also take it for granted that when speaking of physical culture, all these influences are included in the term which combine to produce a healthy, vigorous frame with an active, graceful deportment. Assuming this much, we may be readily enough led to apprehend that there are two phases of physical education, an indirect and a direct one. Under the first aspect I propose to discuss Nos. 1 and 2 of my aforenamed subdivisions, and under the latter Nos. 3 and 4. But first I would like to define the term "indirect physical education." It is simply this, that positional training, which, without being *special*, is, or should be, conducted at all times concurrently with whatever other *special* subject of instruction may be the theme of discussion. It relates chiefly to attitude and personal demeanour in the class-room—positions, in fact, when the body is absolutely quiescent, or when motion is limited to the simplest movements made involuntarily for mere change of posture, or under the direction of the teacher for purposes of class recitation. What can be more painful to the senses of a disciplinarian upon entering a schoolroom than to see one scholar sprawling over his desk like a gigantic human frog, and another huddled into a heterogeneous mass of flesh and small clothes not unlike a sitting anthropomorphous hen; a third with legs extended or doubled under him, as the case may be, hands in the inevitable pocket, head sunk low between elevated shoulders, hair standing erect like quills upon the fretful porcupine, is contemplating with a malignant frown or a harmless stare of innocent vacuity three-eighths of a third reader or four-fifteenths of an authorized misspelling book; a fourth, again, with elbows on desk and head buried between hands, whose complexion eloquently, though tacitly, establishes the truth of at least one inspiration of Holy Writ, "Dust thou art, and to dust shalt thou return," or to mud pies; is evidently seeking to imbibe the rudiments of knowledge as the celebrated character in Dickens' "No Thoroughfare" imbibed moisture through his pores, situated in this case at the extremities of those necessary and often denuded joints which now make dimples in the soiled and dog-eared page before him? Let us turn to a writing lesson. How often do we see our pupils with elevated shoulders, contorted nether limbs, crooked fingers and mouths to match, eyes close to book, painfully attempting to delineate characters which they find it impossible to form aright from the very perversity of their positions? But setting the possibility of correct penmanship aside, how injurious to health must these unnatural and inelegant positions be! what habits of laziness do they engender! and of what physical evils may they not be productive!—round shoulders, weak chests, defective vision. In standing classes the same evils in varied forms may be noticed. Here we have one ambitious youth striving might and main to emulate the grace and dignity of deportment of that amiable, if unpretentious, barn-yard fowl, whose cackling, we are told, once saved the Capitol, by balancing himself on one leg. There a girl, too enamoured of her sitting place to part with it entirely, clutches the cross-bar with a fond desperation, or leans with insouciant ease against the side of the desk, without whose kindly aid she would certainly sink enervate and prone to mother earth. So many men so many minds seems here to be travestied, and so many pupils so many positions is the experimental apothegm of the hour. All this is wrong, and demands remedying. I think it not too much to say that something of true physical culture can be communicated at the desk or in the recitation class. Scholars should be compelled to sit naturally, gracefully and easily, and to stand erect, heels together, toes out, shoulders back and head up; such training is but a preliminary step to the gymnasium or drill-ground.

Secondly.—It is the fashion in many graded schools to permit scholars in the advanced classes to occupy their seats without change of position, save that incidental to purely mechanical desk movement, from the time they enter the class room till the hour arrives for them to disperse for recess or for dismissal. Does not this fashion of itself encourage in youth an idle, slovenly, often listless and sleepy habit? Speaking for myself, I feel it burdensome to sit in the same position for two hours together. I believe many of my professional brethren—voluntary students—will have experienced the same restless longing for a stretch and walk round after an hour or two's intense application to study. What, then, must it be for youth—lively, mercurial, energetic youth—to be thus cribbed and doomed to durance vile? They write sitting, they read sitting, arithmetic still sitting, geography, history, etc.—all sitting exercises. I think that even with our most advanced classes such a course of sedentary discipline is hardly judicious. Change is a law of nature, an imperative necessity with young nature. Half of the school-room languor, ill-performed recitations, covert mischief, etc., more especially in sultry summer weather, is directly traceable to the inert and positively hurtful custom of planting our scholars like celery in trenches, and dropping upon their devoted heads loads, not certainly of earth, but of foul air, and leaving them to vegetate and bleach and assimilate all indigestible elements, without once stirring their inactive forms with the hoe of reason, or refreshing their stultified intellects with an enlivening douche from the can of common sense. I really think that movement—regulated, systematic, unostentatious movement—should be a feature of class routine from the lowest to the highest grades. Change of position, especially in warm weather, is essential to continued effort, healthy tuition, and alert, open-eyed application. So much, then, for indirect physical culture, or the physical culture of the school room. Let us in the next place proceed to consider what means are to be adopted directly in furtherance of the same object.

Subdivisions 3 and 4 of my text treat of out-door exercise—trained exercise. And first as to gymnastics. Running, jumping, skipping, snowballing, lacrosse, cricket, boating, etc., etc., are all good aids to physical culture. Were all boys and girls constituted alike, and did like athletic tastes prevail the year round, these means might prove sufficient wherewith to develop at least a moderately robust physique, and maintain a normal state of healthy being. Unfortunately, all boys and girls are not constituted alike. We have the mercurial, all activity and vim ; the ordinary, all method and mediocrity, in school and out; the studious, all black letter and white paper; the shy, the retiring, the melancholy, the delicate, all nervousness, diffidence, mope and biliousness. Again, sports—even healthy boy-like and girl-like sports—are mutable. The skipping rope has to be changed for tag; tag is eventually discarded for puss-in-the-corner, which in turn has to succumb to the prowess of something less rompish and consequently more sedentary. There comes a time when even the vivacious, bright-eyed darling of the chevy ground or the steeplechase course is seen suspiciously lurking in shady corners, and stooping with dubious moral intent in dark and uncanny spots, over secret and occult delvings in mother earth. The cabalistic sounds of knuckle-down, and taw, and fudge, greet the ear of the tutorial detective on his casual beat through the haunts of the idly-busy young tenants of the playground. The open is deserted, every fence has its row of juvenile human wall-flowers, who blossom in groups, in lines, in couples, even in units, all intent on the same fell purpose. No longer do we see twinkling feet speeding across the green sward, leap-frog is dead, baseball buried, and the whole family of cognate recreative pastime in deepest mourning. Hour in and hour out the devotee of taw stands, sits, kneels, bends, stoops, squats—now shivering, now glowing, now despondent, now jubilant, according as cold or warmth, loss or success, acts upon his external frame or inner emotions. It is the marble season; it comes as regularly as the March winds or the measles, the spring bonnets or the summer roses, and while it lasts, good-bye to healthy, racing, open-shouldered exercise. It is at seasons like this, and more particularly with certain classes of scholars, that the need of some compulsory means of hygienic exertion is best appreciated. How many schools are there in the Province of Ontario with even the faintest elements of a gymnasium attached thereto? Even in those which happen to be supplied with bars and poles and similar apparatus, how many scholars avail themselves of the opportunity afforded of using them in a systematic manner? How many among their preceptors are competent to give instruction in the simplest athletic movement, or to supervise an elementary gymnastic course? It may be answered, the preceptors are not engaged to instruct in physical athletics; the athletics of the brain are all they are required to supervise and direct. So much the worse for instructor and instructed. But with regard to the apparatus—could not a few bars and poles be erected and ropes suspended without entailing ruinous expense on the ratepayers in every school yard in the Province? Could not a few simple yet healthy movements be taught to the scholars without necessitating a very deep insight into the laws of athletics? No matter how humble the apparatus, no matter how elementary the instructions, could not every pupil, boy and girl, be compelled as a matter of duty, where such apparatus is provided, to perform occasional exercise during certain days of the week.

Upon one most vital topic in connection with gymnastics I would like briefly to touch—I allude to the art of swimming, or at least to the method of preserving life while in a state of immersion, voluntary or involuntary. The blindness of humanity in some respects has become proverbial; it is amazing and utterly incomprehensible. Our nationality is threatened by exterior and inimical influences—the voice of warning goes forth, and tens of thousands of bristling bayonets line our defiant shores to resist the aggressor. A disastrous explosion occurs in a coal mine through the destructive agency of fire damp, and a Humphrey Davy at once sets his scientific constructive genius to work to invent an instrument whose use shall tend to avert such calamities for the future. A stately man-of-war with her noble crew founders some murky night in the tempestuous waters which lash a rock-bound coast, and the inventive wits of ship-builders, engineers, and philanthropists are at once enlisted on the side of humanity—with what results? Watertight compartments, magnificent lighthouses, life boats, floating beacons —life-saving apparatus of every kind and degree is multiplied. News of a terrific railway accident is telegraphed through the length and breadth of a startled continent, and measures are at once adopted to prohibit undue speed, check negligency of officials, repair roadways, perfect signal codes, compensate sufferers. A pleasure boat, out under a sunny sky, floating on an unruffled plane of azure, freighted with thoughtless, happy, priceless human souls, capsizes through inadvertency, neglect, or over-crowding, and those souls are hustled into eternity. A sigh of horror is wafted to the ears of the shuddering public, which lingers for a brief instant and then dies away ere the ripples have well closed above the spot from which the poor human forms bereft of life have been lifted for the last time to the light of heaven; and what measures are taken to prevent a repetition of this most awful catastrophe? None; none that are truly effectual. Laws may become for a season stricter, vessels examined a little more closely, avaricious owners of unworthy craft forbidden, under the minacious terrors of a possible penalty, thus to admit humanity by the gross into the most awful arcana of the invisible world at such a ridiculously low figure as twenty-five or fifty cents, or perhaps a dollar, a head. Think of it—the beginning, a *cheap* holiday excursion; the ending, two hundred open graves and the funeral expenses, and then the waste of tears and life energy and heart action; these

> "Sudden partings, such as press
> The life from out young hearts, and choking sighs,
> Which ne'er might be repeated."

Repeated! What decisive and effectual step is ever taken to baffle the destroyer's death and greed, and rob them of their victims? Another bright day, another tempting way-bill, another holiday crowd. Hoary age and russet prime, golden youth and rosy childhood, step on board, all flutter and excitement and high hope. How many as individuals able, if occasion requires, to strike out a limb to save themselves if suddenly immersed in the treacherous element which now woos them with its placid smile; how many so inured to the contact of the water that mere presence of mind will suffice not only to prompt exertions for self-preservation, but will prove efficacious to withhold the deadly clutch which drags down a fellow-being to his death, who, unencumbered, had been able to save himself and perhaps others? It is time, and high time, that something were done in this matter. Why, a dog if thrown into a pond will paddle to the shore, and is a rational human being less able to preserve his invaluable life than a dog? London disasters with their manifold editions are becoming too notoriously frequent, and, I repeat, something should be done to compel humanity, especially young humanity, so to train itself that under exceptional circumstances, and in a foreign element, it may not hopelessly founder like a waterlogged hulk within sight of the smiling earth and the glancing sunlight, and the hills which possibly circle the home where loving hearts are anxiously awaiting the return of—what?

There is but one way to avert these terrible visitations. All the boat-building and examining is futile. The remedy must be with individual self. Life preservers cannot be forever around the necks of pleasure seekers; these must carry with them at all times prompt, in all emergencies, a trained and ready self-possession and a physique so educated that if need be it may, if only like the brute, be taught to make an effort for the salvation of its animating spark of life, and not sink like a stone beneath the eddying waters of a despairing death.

To my next and last subdivision, No. 4, which treats of drill, I would also direct special attention, both because drill can be efficiently taught without other apparatus than the natural mechanical belongings of the human body—to wit, legs and arms—and need not necessitate a very recondite knowledge of abstruse professional technicalities. Drill is of all agents for out-door physical instruction the one *par excellence* for any school, of any nationality, in any climate. If there is a means of building up a man's physique more than another it is drill. If there is an artist more competent than another to put the finishing touches to that sentient statue of clay, which, rough moulded, has been handed in for completion and polish, it is the qualified drill instructor. What says La Rochefoucauld, that shrewd, calculating intellect and master of human nature, in No. 393 of his celebrated Maxims: "L'air bourgeois se perd quelquefois dans l'armée, mais il ne se perd jamais à la cour." And how is this cockney, or, if I may be allowed the enallage, *slang* air lost? Why, by the manly, independent, morally elevating nature of the discipline which is received through the agency of this same drill instructor. In his hands the veriest clod, the most plodding plod of the plodding sons of the ploddingest population that inhabits this round earth, the English rustic, and I, their countryman, say it, may be, and is frequently, transformed, under that magic wand, the military pace-stick, to something having the shape of a human biped. Hodge the ploughman, though he shamble like Ursa Major, or shuffle like a seal with the elephantiasis, may be taught to stand erect, be led by the loving voice and gentle hand of martial authority—supplemented, if need be, by the salutary dread of a tête-à-tête with an offended and avenging adjutant—to contemplate loftier objects than the toes of his high-lows. The magnetic affinity which is ofttimes observed to exist between his fraternally inclined knee-joints may be overcome by the force of moral regimental suasion, and the clodpole who, upon his first appearance upon the parade-ground in all the panoply of warlike vestments, might not inaptly have been taken for a human embodiment of the old-time fable reversed, viz., a sheep in wolf's clothing trussed for the slaughter, not of national enemies, but of himself, turns out in very fact, after a reasonable interval of judicious discipline, to have been intended for a man and a brother indeed, supreme and culminating effect of modern military evolutions—the Darwin of the drill-ground has reclaimed and classified the wild man of the turnip-fields.

In the military schools of the British army, at least while on foreign service, half an hour—usually the last half hour of the school day—is, or used to be, set apart for physical exercise, under the systematic direction of the schoolmaster and his assistants, a plan, I think, which might be followed with advantage in schools which are non-military. I see no reason why boys and girls of all ages should not be drilled. Drill might be made a part of the regular school curriculum. Half an hour daily, or say three times a week, in fine weather, might be set apart for this exercise.

It is not, be it observed, a difficult task to master the rudiments of military movement; it is far from being an unpleasant one. Healthy, manly, captivating, there is no bodily exercise which so trains the limbs and muscles, no species of physical discipline with which is connected so salutary a morale. It is the stepping-stone to military renown—the germ of national independence and self-existence—the fountain-head of its prestige, and has been ere this the foundation on which has been raised the glorious structure of civil and religious liberty. "The British soldier has the swing of conquest," remarked General Grant with admiring emphasis. He has, as I before observed, the swing of the parade ground, which trained him to conquest. Without hesitation, I affirm that many of our greatest victories have been the results of an incomparable system of army discipline—many of our lamentable reverses directly traceable to a lack or relaxation of it. I do not intend to enter into any very lengthy argument here as to the advisability of this or that method of drill—any drill is good; I would merely lay down as a broad and fundamental principle that drill, including extension motions, marching, simple evolutions, etc., might be introduced with advantage into our Public School system; it might be conducted under the supervision of the ordinary teacher, during a part of the ordinary school-day. With the assistance of a good book—such as, for instance, the little manual compiled by Mr. Hughes, Inspector of Public Schools for this city—any individual of ordinary capacity, and with a will, might soon render himself competent to instruct a class of boys or girls, or both, and the results, I conscientiously believe, would soon be evident in a firmer tread, a more erect and open carriage, a bolder front, a more dignified personnel, a healthier physique. Such absurd remarks as "he walks as if he owns the whole world" would cease, or, at least, would cease to bear an invidious meaning, and all appearance of a desirability to become sole proprietor of the nethermost portions of this material universe would vanish too. It may be asked, "How shall we find time for this innovation? We have already a full programme." Admittedly so; by far too full. So full, that the fragile craft of elementary instruction is already settling under the freightage. Oust, I unhesitatingly say, one of our half-hour subjects. Renounce for thirty minutes per diem whitewashed walls and philosophic speculations, and devote them to the light of heaven and physical development; throw ologies and onomys to the winds; let the laws of natural philosophy at this stage give place to the laws of natural, healthy action and growth. We have too much cram and too little digestion; our entrées are too numerous; but where is the *piece de resistance?* Are stultified intellects and unhealthy frames any compensation for a smattering knowledge of geometric deduction, or a bowing acquaintanceship with the signs of the zodiac? Subject is crowded upon subject, algebra follows arithmetic, geometry runs amuck with algebra, mensuration handicaps geometry, and so on, *ad infinitum*, till bewildered childhood wonders, with the English charity boy, who it appears found some difficulty with the alphabet, whether it is worth going through so much to gain so little. Give our pupils a taste for sensible reading, a taste for virtuous enjoyment, a taste for physical culture, and we may not indeed have manufactured a perfect humanity in embryo, but we shall at least have put a good many of our fellow-mortals in the right track to become enlightened, healthy, and happy members of society.

Do not misapprehend me. I do not undervalue mathematics—far from it—but for childhood I value language more. Is it not a pity to see a young man or young woman able to solve an equation and unable to speak grammatically, to read fluently, or to compose correctly? I, like Oliver Wendell Holmes, have an immense respect for a man of talents *plus* the mathematics. Shakespeare and Milton are great, but honour be to Newton and to Herschel. I speak only according to my convictions when I say that to language should be accorded the first place in primary education, and in an elementary school there are many things of more value to the ordinary scholar than mere mathematical formulæ. For why? The average pupil must talk and read to the end of time, but how many require euclid or algebra in after-life?

There is an eternal fitness of things, and, in a country like Canada, to stuff an ordinary girl's head with mathematics when she cannot by any written or unwritten formula whatsoever make her own garments, or initiate her into the mysteries of the corn laws when she cannot so much as bake a loaf of bread, is, I deem, an eternal unfitness—'tis "wasteful and ridiculous excess" indeed. Teach her how to stand, to sit, and to walk like a rational human being with an immortal soul, to talk without murdering the Queen's English or vilifying her next-door neighbour, to read fluently and intelligently our best English Classics, to total up correctly an ordinary market account, to demean herself gracefully and modestly before all men, to fit herself for the highest duties of life which the Almighty has designed erring humanity to perform as loving daughter, as tender sister, as devoted wife, as "ministering angel," woman! We shall have better maidens, better matrons, and, if need be, better heroines. I am aware that I am treading on dangerous ground. There is at present a strong advocacy for higher female education. I say nothing against it for a certain class. Let those who can afford time and money—the latter always an essential, be it borne in mind—obtain the highest education that money can procure or time admit of, and God prosper them. I advocate the cause of those who can never reach a high education, whose paths lie apart from the din of the great world. I speak not on behalf of the favoured few, but of the lowly many, who will not, cannot hope to attain to anything beyond a common school education. We the educators of such have a sacred duty to perform. The many and the lowly are *our* clients, and how shall we, their advocates, account to our consciences in the silence and the gathering gloom of the twilight, if, under the noon-day sun, we neglect our noblest, our holiest trust, and apathetically or ignobly refuse to lift up our voice in earnest, heart-felt pleadings on their behalf?

THE MORBID RESULTS OF PERSISTENT MENTAL OVERWORK.

JOSEPH WORKMAN, M.D., TORONTO.

It is a matter of too much certainty that you are all well acquainted with the tremulous condition of those idle boys who present themselves in class with badly prepared lessons. I am not sure that you often apply your ears to their chests, to listen to the rapid and tumultuous beatings of their affrighted hearts; but if you ever indulge in this deviation from magisterial dignity, you will be able to form some conception of my present trepidation, when, on the verge, if not indeed over the threshold, of second childhood, I present myself as a reader before an assemblage such as this—an assemblage which I might not hesitate to style the "assembled wisdom" of our land, did I not know that this designation is usually given, and not always in a respectful sense, to a very different, though by no means a more useful, body of public servants. In our mother land we were wont to hear of the three estates of constitutional authority—King, Lords and Commons. We know that the Press has taken to itself the title of the Fourth Estate. Let us hope that it may not aspire yet higher, and let us leave it, therefore, undisturbed in its glory. But does not our Ontario constitution present a vacancy? We have no Lords. Why then should the modesty of our order demur to acceptance of the vacant niche? I would be sorry to know that you, though the real moulders and founders of our national strength, should usurp a loftier position, for we cannot with safety abandon the palladium and only true safeguard of *our* constitutional liberties, our cherished limited monarchy, even though we continue to see it represented but in miniature resemblance. But seeing how largely your body is now constituted of ladies, who, we all are constrained to admit, are the rulers of the lords of creation; and knowing, as we all happily do, that the British throne has never been more wisely, more ably, or more virtuously filled than by our present gracious sovereign Queen Victoria, may I not trust that my suggestion of your acceptance of the title and dignity of our third or second constitutional estate will not be declined, merely because some few recalcitrants among you, of the male persuasion, may still be reluctant to enrol themselves as women's rights men? Well, be your decision what it may, and be the estimation by your fellow-subjects of your intrinsic worth and your public service whatever a high public intelligence may award to you, or a low vulgar instinct may deny, I, for one, would have every member of your noble band feel that your calling is one of the very highest excellence and usefulness, and that every member of it is honourably bound to contribute his quota to the augmentation of its treasury of well-earned public esteem. To you society is unquestionably enormously indebted, but you are not to forget that this indebtedness has accumulated from the hard industry and untiring zeal of your meritorious predecessors; and he who contributes not to the fund of honour can draw no honour from it. Every calling in life is honourable only in proportion as it is honourably filled.

When I look back over my two and fifty years of residence in Canada, of which forty-five have been passed in this city, and try to compare the present state of education with that which then obtained, I feel utterly bewildered, and almost inclined to question the continuity of my own identity; yet I have a lingering consciousness that however changed have all my surroundings become, I am still the same personality as I was when Toronto had only 9,000 inhabitants, and not one public *city* school. At that time, indeed, Upper Canada College had been a few years in existence; but, as we all know, it was doing, as in truth it was expected to do, nothing in the line of common elementary education. We had, however, two lower public schools, one called the District Grammar School and the other a District Common School; the former was located in an old shaky wooden building on the corner of Nelson and Marsh Streets—now Jarvis and Lombard Streets,—the other on the corner of Nelson Street and Newgate, which was soon after raised to the dignity of Adelaide Street; the latter edifice was a worthy associate of its adjacent sister. Rennie's seed store now occupies its site. There were a few useful private schools in which the children of our shopkeepers and well-doing mechanics picked up, and their parents paid for, such an education as in those days of frugality and unfledged scholasticism served their turn passably well, and enabled them to keep their accounts quite as correctly, and to steer as clear of bankruptcy as their descendants in later years have done.

As to distinct schools for girls, or, as we now have learned to style them, ladies' seminaries, I can say little, and I believe their paucity left little to be said. I remember, however, one. It was kept by a talented lady who did her work well and unostentatiously. I well remember two pretty bright boys, sons of this lady, whom I used to see accompanying her and their father to church. I have no doubt they received from her their earliest elementary lessons, and she must have so taught them as to inspire their young minds with an abiding love of learning, for in after years they attained to eminent distinction in their University curricula, and both have since achieved and adorned very high positions in public life. Their father never blushed to be reminded that his wife had once taught a school, or to know that to her good sense, industry and conjugal devotion, he was himself, to some extent, indebted for the acquirement of an honourable profession, in which, by his assiduity, integrity and superior talents, he earned for himself a reputation which led the way to his elevation to the highest judicial position in the land.

The inception of our system of city common schools took place in the year 1844, when the population was only 18,500. I had the honour of being one of the first elected, or appointed, trustees. We had then no school-houses, and we had to content ourselves with rented rooms, or small frame houses, in the several wards of the city. In the ward of St. Lawrence, which, in conjunction with the late Dr. Widmer and Wm. Cawthra, Esq., I represented, we hired two rooms on King Street east, and we selected for our first teachers one Mr. Mair and his wife, to whose memories I would here pay the tribute of well-merited acknowledgment of their ability and able service. I am sure that I do no discredit to our present educational staff when I say that as a teacher of writing, and of the most useful branches of common school education, Mr. Mair might justly be classed as *secundus nulli*, if not, indeed, *facile princeps*.

In the other city wards the commencement and the progress were similar. It was not until a change was made in the school law, by which the ward trustees were organized into an authoritative Board, that any movement could be made towards the erection of school-houses. The first built were those of the Park, George Street, and Louisa Street. Others followed at discreet intervals; and now I am pleased and proud to see, by the last issued report of our able Inspector for 1879, that, exclusive of the three charitable "Homes" of the city, the number had risen to twenty-one, and I believe augmentation is still progressing. When I try to compare these schools, as regards their size, elegance of structure, neatness of surroundings, and internal arrangements and furnishings, with the corresponding conditions of those of my early observance, I feel almost as much astonished as if I had landed from a balloon that had carried me from some distant sleepy land, where the schoolmaster was a rare phenomenon, or but a flitting bird of passage.

And it is not in Toronto only, or in our other cities and large towns, that this wondrous change has taken place within the last thirty odd years, for our whole country is bespangled with neat and substantial school-houses, and an education which in my early days would have been regarded as the privilege of only the children of the rich and high, is now attainable by those of every class in society. Surely so marvellous a transformation cannot have owed its accomplishment to any catenation of accidents, or any progression of evolutional spontaneity. It would be just as reasonable for an admirer of the British Constitution, or of the edifices of St. Paul's in London and St. Peter's in Rome, to imagine that the former had framed itself, or the latter had built themselves, as to suppose that our great common and high school system has been a thing of mere spontaneous development. Just as surely as we owe our present liberties to great thinkers, hard workers and many hard sufferers, and as surely as St. Paul's needed a Christopher Wren and St. Peter's a Michael Angelo, and both these many intelligent and faithful assistants, for their erection and completion, so surely has the noble fabric of our school system been the work of a far-sighted and long fore-sighted social architect, and he has been well helped by the men whom he selected as his aids. It must be superfluous that I here tell you I allude to the venerable Egerton Ryerson, who has sought late repose from his long and arduous labours, and has, I am happy to know, retired upon a comfortable annual allowance, for which he is indebted no less to his own worth and popular weight than to the discriminating liberality of a cautious Government and a tremulous Legislature. How happy should I be, and how comfortable would you all feel, could you but look forward to a similar recognition of long and faithful service! Let us indulge the hope that some droppings of the golden shower will yet fall on the withered and close-shaven pastures, where they are certainly much needed.

But some of you have probably begun to think that in demonstrating "the morbid results of persistent mental overwork," it is rather cruel to set out with a prefatory illustration, in the form of an overstraining of the patience of my hearers. For this trespass I can offer, in apology, only the frailty of old age, whose conceded or usurped prerogative has always been that of garrulity; so, trusting on your indulgence, I shall now proceed with my subject.

Considering the severity of the ordeal through which you have all had to pass before obtaining your certificates of qualification entitling you to the position and privileges of public school teachers, it is, I think, fairly assumable that no small proportion of your number have had practical experience of the physical and mental effects of protracted close application to the studies required of you, before venturing to present yourselves for any of the examinations prescribed by our educational authorities. So far, therefore, as you are concerned, I may reckon on your considerate appreciation of all that I may now venture to address to you on the important subject which I have chosen for the present auspicious occasion.

Overwork of mind, equally as overwork of body, is a relative term, whose value may be hardly alike in any two persons, and is certainly very different in different classes of persons. That which may, to one person, be but a light or even an inviting study, may be regarded and felt by another—by many others, indeed—as a heavy and wearying labour or a repulsive drudgery ; so that, whilst some are found to revel in easy mental victories, and to long for wider fields of conquest, others lag slowly and reluctantly on, and look despondingly forward for the close of their exhausting toils. If this be true of those who have reached adolescent or adult life, how much more so must it be as to those of earlier years, whose general organization is only in the plastic stage, when every undue pressure on the tender animal structures may crush them into morbid enfeeblement, and lay the foundation of enduring functional incompetency. The age has passed away when the human mind was regarded as an independent entity, capable of acting by its own distinct inherent powers, without any regard to the functional integrity of the bodily organs. Every student of physiology, and, still better, every student of pathology, knows that, whatever may be the abstract nature or essence of mind, it requires for its sound manifestation a well-organized and healthy brain ; and every experienced physician well knows that the brain is linked in close functional affinity with every other organ and structure of the economy. The prick of a pin in the most distant part of the skin, the pain from a corn on a toe, the burning of a finger tip, the bite of a mosquito, or the tickling of a fly, and, in fact, the incursion or assailment of every agent inimical to the well-being of the individual, is, with electric speed, reported to this grand central, sympathising, and directing governor of the animal machine. In its normal condition, and while its telegraphic conductors—the nerves—continue in unbroken connection, it feels for all, and with paternal promptitude it issues its admonitory and protecting behests to all ; but let its telegraphic wires be broken, or its wondrous electro-magnetic cell-batteries be thrown out of working order, and then it no longer discharges its wonted functions. It would then seem no longer to sympathise with or to counsel its dependent subjects, but to leave them to their own unguided management.

It may seem strange to those who have not given their attention to the subject (and yet no fact is now more decidedly established), that the brain, which feels for all other parts of the animal frame, and promptly responds to their complaints, shows no feeling for itself. Like an affectionate mother, bowed down by ceaseless toils, through wearying days and sleepless nights, over the couch of her suffering child, utterly forgetful of all her own physical needs, just so is it with the brain ; it is utterly oblivious of its own sufferings and wants. I have seen many a case in which *post mortem* examination has shown that the brain had been intensely and extensively diseased, and yet all enquiry of the patients during life failed to elicit from them any admission of pain in the head. Every experienced surgeon knows that in cases of serious wounds of the head, when considerable portions of brain have been extruded through the broken skull, the protruding parts have been cut away without the patient feeling the least pain from the process. Experimenting physiologists know that the brain of animals may be sliced away by the scalpel, down to the very base, and that it may be torn and lacerated, burned with hot irons or concentrated acids, without the animals operated on evincing any sign of pain. Is it not, then, abundantly manifest that this organ may often be a long, though silent, sufferer, and that serious or irreparable injury may be done to it before suspicion of the evil may have been aroused?

After a protracted observance of a certain form of brain disease, which is, unfortunately, every year becoming more common in this country, and which invariably in all countries terminates in death, I learned to make the crucial enquiry of the patients whether they felt any pain in the head ; so far as I can recollect, the stereotyped reply was "None at all." It was not, therefore, at all surprising that their friends, or even their consulted physicians, should regard this immunity as a sufficient assurance that the brain was not fatally affected. I held a different opinion, and I am sorry to say that it never failed of ultimate confirmation.

The morbid results of persistent mental overwork (which is but the equivalent of overwork of brain) may declare themselves at varying periods of life, according to the primary resisting powers of the organ ; and let me here interpose the important qualitative observation that these results do not always first manifest themselves in the overthrow of the physical or the psychical integrity of this organ itself. I have said that the brain sympathises with every other organ or structure of the animal economy. This would be a very one-sided arrangement were there no reciprocity of sympathy ; but such is not the fact. The dependent subjects do unquestionably sympathise and suffer with their afflicted or outraged sovereign. Show me an overworker of the brain, and I will hardly fail to find in him a victim of dyspepsia, bilious derangement, costiveness, muscular lassitude, high nervous susceptibility, periodic mental gloom, or some one or dozen more of the various ills to which abused human flesh is heir.

When the brain itself succumbs under the overweight imposed on it, we see the morbid results either in the physical or the psychical department of its functional relations, or very often in both concurrently, or in necessary sequence.

We have all seen instances of brain break-down ushering in paralysis of one side of the body, or of some more limited portion, holding on, perhaps, for years without any marked enfeeblement of mental power. This may, from primitive organic defect, which is frequently inherited, occur in persons who have never been signalized as hard students or deep thinkers. When, however, the victims of paralysis have been persons who have long overtaxed their mental powers, although the mind may hold out even through several paralytic seizures. it almost invariably yields at last, and then is presented the most saddening and admonishing picture of human infirmity which it can ever be our lot to witness. In the whole range of English literature there is not perhaps a more thrilling depiction of bodily and mental decadence than that which has been handed down to us from the pen of Mr. Lockhart, of the case of his father-in-law, the immortal, but too early mortal, Sir Walter Scott. This case was subsequently availed of by the distinguished Forbes Winslow as one of his most thrilling illustrations of the sad consequences of "overworked mind," in an article under this title, which appeared in the 5th volume of the *Psychological Journal*, in the year 1852. I might, with much aptitude, quote largely from both Mr. Lockhart's and Forbes Winslow's details and remarks, but I presume that many of you are already familiar with the mournful records of the last days of that mighty Wizard of the North, who might be said to have created a new literature, and to have opened up a new firmament in the world of creative fancy—a literature of which the richest poetry is its prose, and its verse the despoiler of its finest beauties. It was not until Sir Walter was utterly broken down and worn out by a series of apoplectic seizures, that seemed to bring in their train a torturing host of painful physical disorders, which he bore with Spartan endurance, that his giant mind at length laggered and tottered, and lost its pristine equipoise and unhalting pace; or at least it was only then that his loving and admiring friends could bring home to their reluctant minds the sorrowful conviction that the mighty intellect, which had so long commanded their wonder and veneration, was now nearing its sunset and passing behind the cloud whose gloom was in truth due to the evening condensation of the vapours it had raised in its noonday fervour. Truly pathetic and simple are the words of Mr. Lockhart, when describing this mournful period of his friend's closing days : "A more difficult and delicate task," says Mr. L., "never devolved upon any man's friend than I had about this time to encounter. I could not watch Scott from hour to hour—above all, I could not write to his dictation—without gradually, slowly, most reluctantly taking home to my bosom the conviction that the mighty mind which I had worshipped through more than thirty years of intimacy had lost something, and was daily losing something more, of its energy. The faculties were there, and each of them was every now and then displaying itself in its full vigour ; but the sagacious judgment, the brilliant fancy, the unrivalled memory, were all subject to occasional eclipse.

'Along the chords the fingers strayed,
And an uncertain warbling made.'

Ever and anon he paused and looked round him, like one half waking from a dream, mocked by shadows. The sad bewilderment of his gaze showed a momentary consciousness, that, like Samson in the lap of the Philistine, 'his strength was passing from him, and he was becoming weak like other men.' Then came the strong effort of aroused will—the clouds dispersed as if before an irresistible current of purer air—all was bright and serene as of old, and then it closed again in yet deeper darkness." Scott died at the comparatively early age of 63. His father and an elder brother had died of paralysis, so that he must have had rational admonition of an inherited liability to this form of disease. It is, however, a rather melancholy, yet, to those well versed in the subject of cerebral disease, by no means a surprising fact, that persons predisposed to brain affections are, as a rule, utterly regardless of their inherited danger. The amount of work which such persons will perform, and the difficulties they will encounter and surmount, are something incredible ; and their disregard of the requirement of relaxation or rest is, to men of ordinary mental powers and slower action, little short of a mystery. It may truly be said of these that "increase of appetite hath grown by what it fed on." This *work-crave* is a veritable disease of the mind—a want of the brain—as tyrannous and insatiable as the craving of the inebriate for his alcoholic cup, or that of the tobacco slave for his cherished pipe. You have all known, or heard of, prodigies of this type. I was long acquainted with one whose name is not unknown in the annals of our country. His mental energy seemed to be inexhaustible, and he appeared, like the stormy petrel, to rest only on the wing. He was an active and fearless politician, and, as a matter of course, he held a seat in parliament. He once told me that on one very stirring occasion he had gone without sleep for an entire week, and had worked incessantly night and day, but was at the end admonished of the necessity of repose by finding that his legs were dropsically swollen. At the time of our conversation he had regained apparent sound health, but I advised him to moderate his work devotion, for he was then advanced in life, and I knew there was a strong taint of insanity in his family. A few years after he died with a softened brain. Did that disease commence only when his physical powers began to fail? Does the lamp begin to burn when its flame flickers from want of oil? or does the miner's fuse take fire only when the explosion takes place? Verily, the freer and brighter the lamp burns, the sooner will its light go out; and the longest and the slowest creeping fuse spark will in due time reach the charge.

A far sadder illustration than the case of Sir Walter Scott, of the consequences of mental overwork, was that presented in the tragic close of the life of Hugh Miller. He was preëminently a self-made man. Those who reach the elevated regions of literature or science aided by the advantages of a liberal education, can but ill appreciate the difficulties and toils that beset the rough and thorny paths of the man who must be his own schoolmaster. The quarryman of Cromarty, to obtain the eminence reached by him, both in science and literature, must have taxed his brain endurance far beyond the limits of safety. It is my belief that even in early life a latent germ of insanity was present in his cerebral organization. If I remember aright, he has told of himself that in his boyhood he experienced visual illusions, or hallucinations. In Smiles' biography of Robert Dick we find recorded, on the authority of Professor Shearer, a very instructive incident which was communicated to him by Dick, whose words are thus given: "His mind was touched somehow by superstition. I mind," he continued, "after an afternoon's work together on the rocks at Holborn Head, we sat down on the lee side of a dyke to look over our specimens, when suddenly up jumped Hugh, exclaiming, 'The fairies have got hold of my trousers!' and then sitting down again, he kept rubbing his legs for a long time. It was of no use suggesting that an ant or some other well-known beastie had got there. Hugh *would* have it that it was 'the fairies.'"

Robert Dick regarded this occurrence as evidence of Hugh Miller's superstition; but to those who have well studied the early phases of mental disease, and have carefully scanned the biography of this wonderful man, it must present a different aspect. It was, in truth, but a morbid embryonal brain creation, in perfect affinity with those of more advanced and horrid development, which proved the tortures of his latter days, and finally precipitated the act of self-destruction.

On the day before his death he was, by request of his wife, visited by Professor Miller and Dr. Balfour. He acknowledged to them that he had been working, night after night, till very late in the morning, hard and continuously, at his new book, which, with much satisfaction, he said, he had that day finished.* On the very night preceding this interview he had, in some horrific pause from his drudgery, passed through one of his terrible brain storms. He described it "as a vague and yet intense horror, with a conviction of being abroad in the night-wind, and dragged through places as if by some invisible power. I felt," he said, "last night as if I had been ridden by a witch for fifty miles, and I rose far more wearied in mind and body than when I lay down." His professional visitors tell us they "came to the conclusion that he was suffering from an overworked mind," and they gave him some very proper advice. "To all our commands," they say, "he readily promised obedience. For fully an hour we talked together on various subjects, and we left him with no apprehension of impending evil, little doubting but that a short time of rest and regimen would restore him to his wonted vigour." Such was their knowledge of insanity. The Hugh Miller that conversed with them so pleasantly and promisingly was not the same personality as that one who, before next morning, shot himself through the lungs. The brain of the former was in the calm that lures before the hurricane; that of the latter was torn and rent by the resistless fury of the electric brain storm. I have myself witnessed a few—too many, indeed—of these deceitful brain calms, and I learned never to trust in them. I remember once, in a summer evening, sitting for half an hour by the bedside of a very intelligent minister of religion, who laboured under the delusion that he had committed the unpardonable sin. He listened to all I said with calm docility, and gave assent to all I urged. To any one unfamiliar with this form of insanity, the impression left by that interview would have been that he entertained no purpose of suicide, or if he previously had, he now had totally relinquished it; and yet that man hanged himself next morning in a noose made of his own white cravat, which we afterwards discovered he had carried in his pocket for some weeks. When found he was kneeling, for on his feet he could not have succeeded in strangling himself.*

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* "Testimony of the Rocks."

It was not many hours after Hugh Miller's friends parted with him in apparent mental cheerfulness and calm, that he penned to his invalid beloved wife the following lines:—

"DEAREST LYDIA,—My brain burns; I *must* have *walked;* and a fearful dream rises upon me. I cannot bear the horrible thought. God and Father of the Lord Jesus Christ, have mercy upon me. Dearest Lydia, dear children, farewell. My brain burns as the recollection grows. My dear, dear wife, farewell. "HUGH MILLER." †

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* Whenever religious insanity lights on the delusion of the sin against the Holy Ghost, or the conviction of unpardonableness, it is as surely suicidal as that fire will burn or water drown.

† This letter, I think, shows that H. M. was free from the delusion of the unpardonable sin. He must, indeed, have been a strong believer in the mercy of God.

The discharged pistol, found in the morning lying in the bath, and a wound in the chest that had perforated the lung and cut the pulmonary artery at its root, revealed the tragic close of the storm. It is much to be regretted that we have not a fuller and more minute report of the condition of the brain by the gentlemen who made the *post mortem* examination, which gives the following conclusion :—

"From the diseased appearances found in the brain, taken in connection with the history of the case, we have no doubt that the act was suicidal, under the impulse of insanity.

"JAMES MILLER, W. T. GAIRDNER,
"A. H. BALFOUR, A. M. EDWARDS."

From the statements often made by Mr. Miller of the intense paroxysms of head pain long suffered by him, it is my belief that the brain substance was not the seat of his disease, but that it was located in the covering membranes, and most probably in the external one, the *dura mater;* for had the brain substance proper been diseased he would have suffered little, if any, pain ; and there would have been physical symptoms, such as partial paralysis, impairment of speech articulation, failure of memory, etc., etc., of which no mention is made, and the intellectual powers would not have remained active and apparently sound, as they did up to his very last day, when he completed his last famous work, the "Testimony of the Rocks." The intermitting character of his head pain is perfectly accordant with a chronic inflammation of the *dura mater.*

One fact is very manifest—the brain of Hugh Miller was not fitted to hard work. It is hard to say what his end might have been had he remained a quarryman or a stone-mason ; but in that case who would have gifted us with "The Old Red Sandstone," "The Footprints of the Creator," and the "Testimony of the Rocks," to say nothing of his powerful religious articles in support of the Non-Intrusion party in the Church of Scotland ? We know what *has* been ; we know not what *might* have been. Had he remained in humble life, and avoided mental overstrain, he might have escaped a suicidal end ; but are we sure that he might not have passed through that lingering living death which so many regard as the gravest of all visitations ? One thing we know : every lover of the science of geology will hallow his memory, and thank him for the light shed in his works on the pages of the great stone book which he loved so well to interpret.

I could very easily, from the materials at my command, multiply these illustrations of the disastrous consequences of persistent overwork of brain. The list of victims is a long and mournful one, but I am warranted in supposing that to most of you the names that would make it up, and the histories of the individuals, are already not unknown.

It may be better that I now enter upon the part of my subject which more immediately concerns yourselves, as members of the profession of teaching, and the youthful members of society who are committed to your charge. As regards yourselves, I do not imagine that it is necessary to indulge in any high flights of rhetoric, or to marshal any formidable array of facts or arguments, to impress you with the conviction that monotonous mental toil, too richly spiced—as I know with you it often is—with mental worry, is a very poor sharpener of the appetite, a very lame invigorator of muscular tone, and a very unreliable soother of nervous excitability. Whatever may be our sphere of work, or whatever may be the toil undergone in the performance of it, if we but know that our efforts are duly appreciated and gratefully regarded by those we serve, the load is wonderfully lightened, and we are cheeringly stimulated to persevere in our course. The physician, when he succeeds in freeing his patient from suffering, and restoring him to good health, generally secures his gratitude and good opinion. The tradesman who does good work, and charges low, is praised by his customers. Even the day-labourer, who works faithfully, is respected by his employer and has his wages paid to him cheerfully.

But how is it with you? The very people whom you work hardest to serve are those who most revile you, and who reward your efforts with the greatest ingratitude. They would have you give to their children that which they have themselves failed to endow them with—good brains and the love of learning. They would have you engraft into their wild stocks those qualities of obedience, order, industry, moral probity, self-respect and self-control which, neither by precept nor example, have they ever tried to inculcate on them. If you fail in these stern requirements, as you certainly must, then you too well know what awaits you. What! tell a fond, ignorant mother, or a rude, swine-headed father, that his boy is dull, lazy, inattentive or ill-mannered! O, no! for if you do you are, so far as that woman's and that man's eloquence and offended majesty can reach, a doomed pedagogue; and Heaven only knows how many more wasps may be in the hive.

As to your clever boys, whose domestic training is well looked to by intelligent parents, everybody knows how little trouble you have with them. They *will* learn, even in spite of your laziness, should you unfortunately—or, may I say, fortunately?—be gifted with that conservative quality. Happy the teacher whose quiver is filled with such arrows! He must make many bull's-eyes; I would very much like to meet with him. Barnum would make a mint of money out of him.

I recently cut from a city newspaper the following paragraph, which I would fondly hope depicts an experience to which only an unfortunate few of your body have been subjected; for if the occurrence narrated be not very exceptional, our conception of the moral and intellectual attributes of rural school trustees must be of a very painful character:

"The head master of a public school in a wealthy western county has been receiving $425 a year, or a trifle more than $8 a week, in return for his services as instructor of the youth of the neighbourhood. Just before the holidays an educational tramp offered to undertake the work for $400 per annum, or at the rate of fifty cents per week less than the master was receiving. Now, if the trustees had been mean men they would have accepted the offer at once. But as there is not a spark of meanness in their composition, they determined to wait upon the schoolmaster and inform him of the lower offer they had received. They waited upon him accordingly, and told him that he could either continue in his position at a reduced salary or give place to a cheaper man. As the schoolmaster had a family depending upon him, he was compelled to accept the lower salary. Next year the trustees will be wondering how it is the schoolmaster does not perform his duties so heartily and so cheerfully as formerly. But they will have the satisfaction of knowing that they are keeping him humble. There is nothing like compelling the minister and the teacher to practise humility."

It is my belief that the men who entered into the above negotiation should be closely watched when nearing a neighbour's hen-roost, and that their butter should always be tested by the market weigh-master. They would haggle with the gatekeeper of Paradise, or try to slip in, toll free, by the back door.

How is it to be wondered, when the mental and bodily wear and tear and worry to which your profession are subjected are considered, that the average duration of the lives of its members falls so much below that of many other classes of the community? This fact is made abundantly manifest by the figures shewn in the annual reports of our Provincial Registrar. I trust you will not suspect that I desire to create alarm by the statements I am now about to make, for I merely desire to show you the truth, which can never do ultimate harm; and if I may, to any extent, impress on the public mind the destructive results of your peculiar labour, and the moral and physical disadvantages under which it is performed, and thereby awaken a warmer sympathy with your misfortunes, I shall hope to have atoned for any wounding of your feelings, or any trespass of politeness which I may undesiringly commit.

In the columns of the Registrar's tables of deaths of teachers in this Province, for the four years ending with 1879, the numbers stand as follows:—

In 1876 there were reported	51 deaths.
" 1877 " "	45 "
" 1878 " "	38 "
" 1879 " "	56 "
Total	190

I am aware that the returns made to the Registrar have been, as yet, imperfect. They do not show the actual full mortality of the Province, but I may assume that they are not more defective as regards teachers than as relates to other classes; consequently they are, for purposes of comparison, approximately reliable.

The aggregate of the ages of the above 190 deceased teachers was 8,391 years, which would give, as the average to each, about 44 years and 2 months. The average age of 2,290 farmers who died in 1879 was $63\frac{8}{12}$ years, and that of 1,651 wives of farmers was $60\frac{1}{2}$ years; of 46 clergymen it was 62 years; of 39 tailors, 64 years; of 32 masons, 60 years; of 27 gardeners, 63 years; and of 184 gentlemen, 68 years. The returns for the three years preceding 1879 show figures pretty nearly corresponding to those above quoted. The disparity between the average ages attained by teachers and persons of the classes here named is certainly very striking, and yet I am convinced it does not fully represent the actual inequality, for it will be found that in 1876, 4 so-called teachers died, whose aggregate ages amounted to 294 years, or $73\frac{1}{2}$ each; in 1877, 5 gave an aggregate of 358 years, or $71\frac{3}{5}$ each; in 1878, 9 gave 629 years, or 70 each; and in 1879, 14 gave 972 years, or 71 each.

Now, I have not had the pleasure of a very extended personal acquaintance with the members of your profession, but from that which I have had I am constrained to believe that the number to be found in active service at the age of 70 years, or even at 60, is very small; and I think you will all concur with me in the belief, that any man or woman who had taught school from the age of 20 up to 60, and who lived on to 70 or 80, or, as I have found five to have done, up to 81, 83 and 89, must have been gifted with a very superior and tough organization, and beyond all question not one of these veterans had to pass through the severe preparatory ordeal to which teachers of the present day are subjected. What a comfort to all of us it would be to believe that the lives of these lingerers were elongated by the sufficiency of their retiring allowances!

I think that in order to arrive at a just conclusion as to the average age attainable by teachers of the present day, in active service, we should eliminate from our calculation those averaging seventy years or over; indeed I question if we should not draw the line at sixty. Putting it, however, at seventy, and deducting, for the 32 long-lived teachers, their aggregate of 2,253 years from the total 8,391 years, we get, as remaining for the 185 shorter-lived, an aggregate of 6,138 years, or an average of $38\frac{10}{12}$ for each. This is the average probable life-span that may be expected by five teachers out of every six, even embracing in the latter figure those rare specimens which, I fear, will every year become scarcer and scarcer. Only ten other occupations given in the Registrar's tables show worse figures than those legitimately falling to teachers.

In view of these gloomy facts, it becomes very natural that we should inquire as to the causes of the comparative brevity of the lives of teachers. In one of the reports of the Registrar I have found that he estimates the proportion of deaths from consumption, in teachers, as equal to one-third of their total deaths, and this proportion was much exceeded last year. Let us compare your proportion with that shown by a number of other occupations, and we cannot fail to be struck with its magnitude. The following are the figures for the year 1879:—

Gentlemen...	total deaths,	184,	of which	from consumption,	13= 7 %
Paupers......	“	41,	“	“	3= 7.3 %
Physicians....	“	29,	“	“	3=10.3 %
Farmers.....	“	2290,	“	“	246=10.8 %
Shoemakers..	“	94,	“	“	13=14 %
Clergy.......	“	46,	“	“	7=15.2 %
Labourers.....	“	681,	“	“	117=17.2 %
Carpenters...	“	125,	“	“	22=17.6 %
Merchants....	“	113,	“	“	21=18.6 %
Masons	“	32,	“	“	6=19 %
Milliners and Dressmakers.	“	30,	“	“	10=33⅓ %
Teachers.....	“	56,	“	“	23=41 %
Bookkeepers and Clerks..	“	66,	“	“	34=51.5 %

Might it not be well that our aspiring young people of this time, who are turning their backs on the plough and the milking-pail, and who, thanks to your hoisting efforts, have crammed their brain cases with such a quantity of tip-top learning as to elevate them some fathoms above their hard-working, tight-fisted, ungrammatical fathers and mothers, would cast their eyes over the above figures? Nine-tenths of them cannot promise to themselves positions higher than the last three on my list, and if they would but duly weigh the killing-off capabilities of these, they might consider it more discreet to cultivate muscular strength than to struggle after nervous enfeeblement and premature bodily decay.

As relates to the total deaths from consumption in Ontario within the four years mentioned, a very important fact is presented in the preponderance of this fatal malady among females. Of 8,480 deaths from consumption registered in these years, 4,735, or nearly 56 per cent., were of females, against 44 per cent. of males; in other words, more than 5 females to 4 males. Now, in the mortality of the Province, the proportion of total deaths was 39 of males to 35 of females; and the number of living females in the year 1871 was 36,000 less than that of males. The births of male children have, in the last 10 years, exceeded those of females in the proportion of 108 to 100. It is evident from these figures that women are more liable to consumption than men, and hence it follows that they are less capable than men of resisting the morbific agencies which tend to its development.

We have seen that the occupation of teaching is an eminent consumption factor. The report of our City Inspector of Public Schools for the year 1879 shows that in the total of 148 teachers employed, no less than 126, or 85 per cent., were females. In a Toronto evening paper, under date Ottawa, July 8th, the following announcement appeared :—"Some important changes are announced in the *personnel* of the teaching staff of the Model School. The services of all the male teachers are dispensed with, with the exception of Mr. Parlow. Those of Miss Walsh have also been dispensed with." A happy dispensation, let us hope, for Miss Walsh ! But are not Mr. Parlow's new aids unsafely above par in the school market ? The man who fails to foresee the ulterior results of this school femalization must be very poorly versed in hygienic and sanitary science ; and I feel well assured that the final economy will prove very fallacious. That women have a perfect right to fight their way up to the same position as men, or even to don the same garments as men, I would not for a moment dispute. Our most gracious Queen is a good woman and an excellent Sovereign ; yet her ministers and high officers are all men ; she has sent some of her male children and grandchildren into the army and navy, but none of her daughters or granddaughters ; much less has she ever dreamt of manning her ships with women, or recruiting her army from their sex ; and considering that 8 per cent. more males are born than females, it would be very unfair to expose the lives of the latter to as much danger as men are called on to encounter. Should we not apply the like rule to our educational army ? I am thoroughly persuaded that women are unable to bear the tug and toil and worry of teaching as long and as well as men can do, and I think I shall, before closing this paper, adduce statistical proofs of this opinion in another department of disease, to be presently taken up, which will be found irrefutable, and should convince my hearers of the gentler sex that though it is quite fit and proper that they should assume and enjoy all those prerogatives and preferences which the chivalry of our sex and our good manners can never contest, whether they may be called for in our theatres and concerts, our railway and street cars, or any place else where they may condescend to bless us with their approving smiles and their refining society ; yet it is not advisable that they should seek those killing-off positions in life which, in bygone days, have been less perilously, and, perhaps, not less efficiently, held by men.

A few months ago you all may have read in the newspapers the narrative of a female prodigy of learning, whose achievements, under difficulties which rendered them truly marvellous, might put hundreds of male students to the blush, whilst they must have been dwelt on by thousands of her own sex with high exultation. The heroine of the story was one Ellen Watson, daughter of a schoolmaster of Reading, in England. Her circumstances were only moderate, so, to enable her to prosecute her own studies, she was obliged to act as a teacher of others. In the end she carried off, at the close of the session of 1877, the highest possible mathematical distinction then open to her, in University College, London. She followed up her victory by presenting herself at the London University examination of 1878 for the degree of Bachelor (not Maid—that title is now bad grammar) of Science, and "she was among the first of her sex" to capture that honour. Poor thing! I wish she had captured another sort of bachelor, for the one she set her cap for proved a very bad match, as the sequel will show, for, in the words of the elegiac editor of our Toronto daily: "Between studying and teaching she had been overworked. She was sent to South Africa to recuperate, and there she continued to teach and study until she succumbed, on the 3rd of December last, to consumption."

Yes, Ellen Watson "succumbed to consumption." What of that? So did Kirke White succumb, and so have succumbed, and will succumb, hundreds more. But is not the glory of the thing worth the sacrifice? And then, the *example!* Just think how noble and stimulating is that. Hear our sage editor's peroration on *that*:—

"At all events," writes he, "the example set by Miss Watson is a lofty one, and something will be gained if it should prove an incentive to even a small number of young girls elsewhere, to devote themselves more to intellectual pursuits and less to the acquisition of accomplishments that are at once trivial and costly. On the girls themselves, more than on any *one* else, it depends whether they will yet find their way, on terms of equality, into all seats of learning, however venerable or exclusive."

Is not this very fine writing? I wish, nevertheless, that I could discover whether the writer desired to be understood as indulging in a little irony, or as penning his serious convictions. I am wicked enough to suspect, when he speaks of "something being gained, if it should prove an incentive," etc., that he must have some interest in a coffin factory, or that he intends to become a doctor. That fling at "accomplishments that are at once trivial and costly," would indicate that he is some miserly curmudgeon, or cynical celibate, who, in revenge for some dozen of refusals, would kill off as many pretty girls as he could, and rejoice in the survival of the fittest to become old maids.

"On the girls themselves," he says, "more than on any *one* else, it depends whether they will yet find their way, on terms of equality, into all seats of learning." Begging his august pardon, I should rather say, it depends very much on some *one* else, whether a girl shall find a seat, on equal terms, in that college which abhors *bachelor* honours, and yet elevates woman to the highest and holiest dignity to which her sex can aspire—a dignity which, I fondly trust, will never cease to be striven for and achieved by every daughter of Eve who possesses those qualities of heart and head which will make her a good wife and a good mother. There are not too many women in the world. If men would set them the example of patient, courageous industry, and of economic expenditure in their own disbursements, they would find them better helpmates than some of them are, and there would be fewer old bachelors and old maids than there now are. The young man who cannot afford or venture to marry because he finds his salary hardly enough, or perhaps too small, to pay his tailor's bills, his club dues, his cigars and wine disbursements, and a dozen of other silly requirements, would act wisely by lopping off his extravagances, and investing the proceeds of his economy in a marriage license (but not in a senseless marriage tour), and in the purchase of some plain and useful household furniture. I venture to say that such a man will be richer (and I speak from experience) at the end of twenty years, to say nothing of his conjugal happiness, than he ever could become as a shivering, withering, hangfire bachelor, or a club-cultivating dandy.

But I have not indulged in this digression for the edification of my male auditors, for if there is a preponderance throughout the Province of female over male teachers, similar to that which obtains in this city, there must be but little room for improvement in the direction indicated. If, however, my lady hearers will just invert the terms of the fable, and, so far as practicable, apply my hints to their own financial management, and curtail their expenditure as much as their good sense and prudent foresight may prescribe, so that they might be able to club their savings with those of some others whom I need not specially indicate, they would find they had acted wisely, and they would carry off better bachelor degrees than poor Miss Watson did.

I would now crave your attention to another part of my subject which has naturally long engaged my serious consideration. I have hitherto treated of the morbid results of brain overwork as related to bodily disease and death. There is another form of disease which brings to those doomed to witness it, though not to the victims themselves, a sorrow even deeper, more intense, and longer-enduring than that which we feel when consigning our loved departed ones to the grave ; it is that abiding, and so often hopelessly hoping agony with which we regard those dear to us, whose mental light has passed under eclipse from which it may never emerge, or into which it may again and again pass, after numerous hope-betraying intervals of lucidity, that are sometimes of considerable duration. This living death is regarded by the friends of those afflicted as the direst visitation of the

Divine Providence, though it is quite certain that the great majority of its victims suffer very little mental pain, or many of them none at all, under the fully developed form of their malady. It is in the early, incubating stage of their disease, when unclouded intervals of mental calm enable or constrain them to reflect on their threatened danger, or when painful bodily symptoms usher in their periods of irritability or resistless passion, that they undergo true mental suffering.

That insanity is on the increase, is, I fear, a fact so clearly established by its statistics, as now to be accepted as a certainty ; and indeed, taking into view the multifarious and ever-multiplying factors contributive to its development, it seems to me to be an unavoidable *a priori* conclusion, that it should exhibit a continuous increase. Among these factors, brain overwork, in its various forms, which embrace many other indiscretionary and dangerous indulgences, besides hard study, is certainly not the least potent. The undue indulger in alcohol, or soothing narcotics ; the slave of strong passions, or the fosterer of ill-temper ; the ambitious, the envious, the spiteful, the cunning, the unfortunate and the oppressed, all overwork their brains. It is not, however, my purpose to embrace in this paper all these evolvers of mental overthrow, but more limitedly to confine myself to the consideration of its incidence in the class to which you belong. I shall, therefore, now submit to your attention some abstracts from the reports of a number of the institutions of this country devoted to the reception and treatment of the insane, premising that I especially desire of you to mark the difference between the incidence of insanity in male and female teachers.

1st. The institution situate in West Philadelphia, called the Pennsylvania Hospital for the Insane, and consisting of two distinct establishments, some distance apart, one for males and the other for females, shows the admissions of male patients in the last 40 years to have amounted to 4,441, of which 53 were teachers, or a little less than $1\frac{1}{5}$ per cent.

The admissions of females amounted to 3,839, or 602 less than those of males. In these 3,839, the admissions of teachers were 109, or about $2\frac{7}{8}$ per cent., or $2\frac{1}{3}$ times those of male teachers. It is my belief that this preponderance of female over male teachers would be found to have arisen in late years, since a larger proportion of female teachers have been employed, and higher qualifications have demanded a more severe and protracted course of preparatory studies.

2nd. The Connecticut Asylum, in its report of last year (1880), shows a total, from its commencement, of 1,114 admissions of males, of whom only 7 were teachers ; but of 867 females admitted, 34 were teachers ; in other words, there was only one teacher in every 159 male patients, but one in every 25 female patients.

3rd. The Vermont Asylum in the last two years admitted 178 men and 137 women. In the 178 men there was no teacher; in the 137 women there were 7 teachers.

4th. The Danvers Asylum, Massachussets, shows, in 1879, 9 female teachers in 334 women admitted, but no male teacher in 318 men admitted.

5th. The McLean Asylum, near Boston, shows 3 female teachers in 34 women admitted in the last year, but no male teacher in 17 men admitted.

6th. The New Hampshire Asylum, at Concord, admitted 128 men and 120 women in 1879 and 1880. Of the men 1 was a teacher; of the women 6 were teachers.

7th. The Middleton Asylum, in New York State, admitted, in 1879, 85 women, of whom 2 were teachers; in 71 men admitted there was no teacher.

8th. The Elgin Asylum, in Illinois, admitted, last year, 125 women, of whom 11 were teachers; but in 161 men admitted there was no teacher.

The preceding eight asylums, as you are all aware, represent communities in which education has been very widely diffused, and has been pushed to a pitch of boasted eminence.

I am unable to exhibit the relative incidence of insanity in male and female teachers in a number of other Eastern and Middle States, in consequence of the tables given in the reports not distinguishing the sex of the teachers admitted; but from my personal knowledge of the institutions, and of the present state of education in the communities represented by them, I am led to conclude that they would show figures very similar to those presented by the eight asylums herein named.

When we examine the reports of asylums situate in parts where education has commanded less attention, or has only of late years been vigorously advanced, we find the disparity between admissions of male and female teachers much less striking; for instance,

1st. The Eastern Virginia Asylum, in 475 men admitted, shows 8 teachers; and in 364 women, 9 teachers.

2nd. The Nebraska Asylum, for the years 1879 and 1880, shows 3 teachers in 214 men admitted, and 3 in 152 women admitted.

3rd. The Toronto Asylum, for the 39½ years of its operations, up to 1st October, 1880, shows 46 teachers in 2,830 males admitted, and 45 in 2,473 females admitted. If we go on increasing the number of female teachers and augmenting their preparatory labours as energetically as we have done in the last few years, the above proportion will certainly undergo a very marked change.

4th. The Kingston Asylum, since its commencement in 1855, has admitted 760 men, of whom 10 were teachers; and 542 women, of whom 12 were teachers.

5th. The St. John Asylum, New Brunswick, in a total of 398 men admitted, shows 2 teachers; but in 340 women admitted, 9 teachers.

The following paragraph from the 31st page of the report for 1880 of the Utica Asylum, New York State (which I am sorry to say is among the number of those which have not distinguished the sex of teachers admitted), is certainly not uninstructive:—

"Of the 468 admissions, 4 of the persons had received a collegiate, 30 an academic, and 374 a common school education; 2 could only read and write, 36 could read only, and 22 had received no education."

Permit me here to introduce another paragraph, which I recently met with in a city paper:—

"Ohio is going to have a Medical Commission appointed to inquire into the conditions under which scholars in public schools work. The two points most insisted on by those urging an investigation are the alarming increase of myopia, or defective sight, and the impaired nervous condition of the pupils who have passed through all the stages of public school education. These troubles are not confined to Ohio, but prevail in Ontario. One of the reasons is the attempt to teach too many subjects. In the higher classes of our public schools it is thought necessary that a lad who is destined to be a mechanic should be drilled in Latin and Euclid."

It has certainly appeared to me that of late years the number of young persons met with on our streets, wearing spectacles or eye-glasses, is proportionally very much greater than it was twenty-five years ago. As to the increase of nervous affections, I believe that fact is indisputable.

It would, then, seem, from the figures cited, that education—that is to say, of the high pressure order now prevailing among our cousins—is not a very reliable protective against insanity. Let us not, however, adopt the conclusion that ignorance is a potent preventive. It is my decided belief that a sensible, solid education, obtained without overtaxing the mental powers, and without injuring the health of the body, is one of the best preservatives of mental integrity.

I think it is impossible to make a calm survey of the facts which I have submitted to your consideration in relation to the two maladies—consumption and insanity—without coming to the conclusion that persistent mental overwork, and the wear and worry of the teacher's life, are very badly adapted to the delicate and highly susceptible nervous frame of woman. It is more than I can hope for that the observations I have felt constrained to offer will meet the approbation of that portion of my audience whom it has been my sincere purpose to benefit, for unpleasant truths are like distasteful medicines, which no honey-smearing of the edge of the cup will deprive of their repulsiveness, or will convince the sick child of their healing virtues. Not long ago I had the privilege of addressing a respectable body of teachers in a county town. After the close, a young lady was heard to say she "liked it all very well except the figures." For a like reason I would suppose she would like the play of "Hamlet" better with the exclusion of the Prince of Denmark.

Doubting not that I have quite far enough trespassed on your patience in dealing with matters relating to your own position and interest, I must now entreat your extended forbearance whilst I offer a few observations bearing upon the condition and well-being of those placed under your care. I presume not one of you will decline to confess, with St. Paul, that "when you were a child you spoke as a child, you understood as a child, and you thought as a child." I also presume you will admit that the processes of speech, understanding, and thinking have their organic seat of direction in the brain. Well, what is the brain of a child like, and what degree of stress or exertion is it able, without injury, to sustain? The child's brain at birth is but an imperfectly formed or developed organ; it is very soft—no better, in fact, than semi-fluid; it acquires firmer consistence but slowly and gradually, and, like the rest of the bodily structures, it does not attain to its normal firmness and resisting capacity before adult age. It is estimated that the brain receives and circulates one-fifth of all the blood of the system. The more blood an organ receives, the more important must be its functions, and the greater its demand for developmental nutrition and unhampered action. The child's brain, from the earliest dawning of intelligence, is a very busy worker; but the child prefers that sort of work which it finds most agreeable; it skips, and plays, and laughs, and shouts, for these are all pleasant operations, and highly conducive to both its bodily and mental well-being. This is the first and far the most profitable part of a child's education; but it is not to last indefinitely. In course of time, but often far too soon and too harshly, its frolicking and skipping are interrupted, or very much curtailed, and the wayward urchin is sent to you to be turned from a restless automaton into a thinking, or perhaps a parroting machine, with a ponderous balance-wheel, which is often very hard to start, and sometimes impossible to stop.

When I hear of a boy carrying to and from school six or eight books, in which he has to prepare at home as many lessons, I sincerely pity him, if he is dull or is a reluctant student; if he is clever and ambitious, I tremble for his prodigal discounting of future brain power. Even within our own city I could recall the names of too many who thus laid the foundation of early mental bankruptcy. The danger to clever, ambitious girls, similarly tasked or incited, is still greater. Their brain and nerve structure is finer and feebler than that of boys, and their muscular tone is kept at a lower point by their usual indoor, sedentary habits. They often display more quickness of apprehension, and a keener desire for approbation, than boys evince; but their mental endurance is generally in inverse proportion to their mental agility, and their love of praise may prove a very perilous allurement to mental overstrain. The period of adolescence is usually with boys an epoch of inceptive bodily and mental invigoration; in girls it is always a critical physical transition, through which they will pass with less danger the less their brain and nerves have been enfeebled by prior exertion.

Thinking is hard work; none feel that it is light except those who do very little of it. Thinking is brain work, just as walking or fighting is muscle work. The more work a muscle does the more blood is attracted to it, and the faster it wears out and parts with its constituent elements, to replace them with fresh ones derived from the blood supplied to it. All work, whether in the muscles, the brain, or any other organ or structure, causes increase of heat. This fact, as regards the brain engaged in close thinking, has been established by recent thermometric experiments. Now, a certain amount of work is necessary to the good health and due growth of every organ; but overwork necessitates overwaste, and that overwaste is accompanied by a dangerous excess of heat. These facts are now well known to physicians, especially in the form of disease called typhoid fever, in which every degree of rise in the thermometer makes the doctor tremble, and when he sees the mercury reach a certain high mark, he becomes convinced that the case will end in death. Kirke White, we are informed, used to study, sometimes all night, with a basin of cold water by his side, in which, from time to time, he dipped a towel which he wore on his burning head. He died of consumption, but also of something more, for at the last he was quite insane. I have known of some other ardent students who also were obliged thus to cool their brains. I avoid telling you where, or how, they now are.

I should like very much to learn the results of a wide series of thermometric observations on the heads of the young people who are now studying for what is called your "intermediate examination." I have heard of the nocturnal slavery of a few of these early grave, or asylum lodgment seekers, and I must say they are on the wrong road to future good health of either body or mind. As to what may be the extent or the severity of your ulterior higher examination, I am but imperfectly informed, but the little I have learned almost makes me shiver. Within the past year I was consulted by a broken-hearted and much brain-hurt young man, who had failed in his examination for a second-class teacher's certificate. On inquiring of him what were the subjects on which he had to pass, he named, if I rightly remember, twelve. Now, if he had to pass in all these, it is presumable that he also would have to teach them all, and of course his scholars would have to study them all God help *me*, if I had to stand up in even a quarter of a dozen!

When the Turks took Constantinople, the comet of Halley was on one of its visits to the sun. All Christendom trembled. The Inspector of schools was approaching with his blazing train of heathen examiners. Pope Callixtus III. commanded his pupils to annex to the Ave Maria the entreaty, "Lord save us from the devil, the Turk and the comet."

I would recommend candidates for our intermediate and second-class school honours to pray—"From one half or more of the filigree subjects prescribed for our distraction, good Mr. Crooks, deliver us!" As to your first-class and High School champions, they may be left to shift for themselves. If they have escaped with whole skins and uncracked brains from the first and second examination, they may be allowed to take another bout.

In bringing my paper to a close, I think I cannot do better than transcribe, from a book written long ago by the distinguished Christopher William Hufeland, Professor in the University of Jena, the following sensible passage:—

"The powers of the mind," says this writer, "must not be exerted too early. It is a great prejudice that people imagine they cannot make a child begin to learn too soon. But it is certain that a child may begin too soon, when that period is chosen during which Nature is still employed in forming the bodily powers and organs, and has need of all her strength for that purpose. This period extends to the seventh year; and if a child be obliged at an earlier age to apply to learning, and be confined in a sitting posture, its body will be deprived of the noblest part of its powers, which must be now wasted by the business of thinking; and the consequences will be, a checking of the growth, imperfect formation of the limbs, muscular weakness, bad digestion, corrupt juices, scrofula, and a preponderance of the nervous system in the whole machine, which will become burdensome during life, by nervous affections, hypochondriasis, and evils of the like kind. Much, however, will here depend on the difference of constitution, and the greater or less vigour of mind; but I certainly request that parents and others will, in this respect, pursue a method *directly contrary to that usually followed*. If a child show an early disposition for thinking and learning, one ought, instead of straining its powers the more, as is commonly the case, to prevent it from application till a later period; for *such premature ripeness is generally a disease*, or at any rate an unnatural state, which ought rather to be checked than promoted, unless one wishes to breed up a *monster of erudition*, rather than a sound healthful man."

Truer words than those just quoted were never written. The whole of the book, which is entitled "The Art of Prolonging Life," abounds with valuable instruction. Mental precocity is "an unnatural state," and all "premature ripeness is a disease," which should be regarded and treated as such; yet, now let me here ask you a question: Are you not all very fond of, and very proud of, clever, precocious, hard-working pupils? Do you not pat them, and pet them, and spur them on, with stimulant praises and look forward to their eclipsing success in competitive or other examinations as your noblest trophies? Take heed of what you may be doing, for the "paths of glory too often lead but to the grave," and you may be but harking them on in pursuit of a phantom that "only flies to lure them to their doom."

Up to last night it was my intention to close my address at this point, but I was then reminded, by the valuable pertinent observations made by yourself, Mr. President, and by several other gentlemen who followed you, on the highly important subject of school ventilation, that I should not have passed unnoticed the most potent, perhaps, of all the physical factors of disease to which teachers are subjected. In several of my previous addresses—delivered in other places—I gave prominence to the destructive operation of contaminated school-room air on both teachers and pupils. Fearing, however, that my paper, should it embrace all that I desired to submit to your attention, or even any considerable moiety, would much exceed the limits I could hope to be acceptable to my audience, I was constrained to curtail it as far as possible. I do not now regret this decision in relation to defective school ventilation, for the sensible and forcible observations to which I last evening had the pleasure of listening, satisfied me that your body do not stand in need of any stimulation to awaken a conviction of the deleterious influence of this morbific agent. Dr. McCormack, of Belfast, some years ago published a very instructive book on the subject of rebreathed air in its relation to pulmonary consumption. He is, perhaps, rather too concentrative in his theorem when he asserts that this disease has for its sole and constant cause rebreathed air. It is, however, my firm conviction that it has no more potent or prolific factor, and there cannot be a shadow of doubt that the high mortality of teachers is, to a very large extent, ascribable to this poisoning agency.

How you are to protect yourselves against this death-dealing evil I confess I fail to conjecture. Artificial ventilation is, in truth, a costly provision, and I question if even in our large cities, in which Trustee Boards are constituted of a more liberal and intelligent class of men than those generally chosen in rural or village communities, our representatives would venture to call for the necessary annual appropriations to meet the expenditure. It seems to me that one of the greatest evils connected with our schools is their largeness. It is well known that large hospitals are, in the aggregate of their results, about as good as none at all; indeed, many sanitarians regard them as worse than none at all. How, within the cubic space available in even our best schools, an adequate supply of even moderately-poisoned air is to be supplied to each pupil in the dense crowd, I confess I fail to see, for nothing short of a strong motor-power could suffice to force in the required constant supply of pure air. I fear the best you can promise yourselves will be but a mitigation of the existing evil, and to secure this nothing short of compulsory legislation will prove effective. I have heard of one zealous and conscientious teacher, in a western village, being taken sharply to account by his trustees for burning too much wood and letting in fresh air to improve the ventilation of his school. These economic sages thought it was nothing short of insanity to let in cold air, and thus create a demand for more firewood. Now, to leave the matter of improvement of ventilation, as merely permissible, in the hands of such clowns, would be to consign it to predetermined infanticide. I would fondly hope that our Minister of Education will muster courage to meet this vitally important requirement of his position, by the introduction of such a measure of legislation as will compel trustees to make provision for this improvement, and all others protective of the health of teachers and scholars.

I cannot dismiss this subject without again quoting from Professor Hufeland's book another passage, which I would warmly commend to your respect; it is as follows:

"I must here remark, that a great many of the evils which attend too early study may not arise so much from exerting the powers of the mind as from confinement and sitting, and from the corrupted air of schools in which children are taught. At any rate, the weakness is thus doubled. I am fully persuaded that it would be much less injurious if children were made to perform their school business in the open air during the fine seasons; and here, at the same time, would they have before them the book of Nature, which, supposing that the pupils are capable of reading and understanding it, is much more fit and proper for their first instruction than all the books that ever were written or printed."

Whilst I listened last night, Mr. President, to your interesting details of the working of your school play section, the passage now quoted came into my recollection, and I questioned whether it would not be a very desirable improvement, so far at least as the bodily health, and perhaps also the mental vigour, of your pupils are concerned, that they "were made to perform *this* school business in the open air during the fine seasons."

In my young days I used to hear surprising accounts of the able classical and mathematical scholars taught by the hedge-schoolmasters of Ireland. Who will say that the pure air breathed by the hedge-schoolmaster's pupils contributed less to their proficiency than his tutorial competency?

UNIFORMITY OF TEXT-BOOKS.

S. S. HERNER.

Mr. President, Ladies and Gentlemen,

Assembled as we are for the purpose of discussing subjects for the advancement of the educational interests of the Province, one of the most important that can engage our attention is the subject of "Uniformity of Text-books" in our public schools. The pupil, the parent, the teacher, the inspector—all have a vital interest in it. As soon as the pupil enters the school, a text-book of some kind is regarded as a necessity. Ignorant of the contents of it, and ignorant of the use to be made of it, his first experience should be of the most pleasant kind, because he is beginning to lay the foundation for all subsequent acquirements. If a dislike to the routine of the school be caused by means of the unsuitability of text-books, the evil done will be great. The parent has a direct interest in knowing that his child is placed in the most favourable circumstances for acquiring the rudiments of learning, and that the expenses incurred in the purchase of the necessary school books yield the best returns. The teacher's success in the school depends, to a limited extent, upon the ease with which the pupils can be classified for the prosecution of the specified subjects of the school programme. The inspector can, with greater facility, compare the teaching in the various schools in his inspectorate where the same series of books is used.

In advocating uniformity of text-books, it is necessary to know what part of the population of the Province is directly affected by it. Referring to the last Annual Report of the Minister of Education (1879), it is seen that the total number of pupils was 487,012, of whom $\frac{26}{100}$ of 1 per cent. were under 5 years of age, $96\frac{9}{100}$ per cent. from 5 to 16 years, $3\frac{50}{100}$ per cent. from 17 to 21 years, and $\frac{15}{100}$ of 1 per cent. over 21 years. With reference to their classification, it is seen that 155,861, or 32 per cent., were in the first class; 110,093, or $22\frac{60}{100}$ per cent., in the second class; 130,013, or $26\frac{70}{100}$ per cent., in the third class; 74,368, or $15\frac{27}{100}$ per cent., in the fourth class; 15,622, or $3\frac{21}{100}$ per cent., in the fifth class; and 1,055, or $\frac{22}{100}$ of 1 per cent., in the sixth class. It is thus observed that 97 per cent. of all the pupils were from 5 to 16 years of age, and about 81 per cent. in the first, second and third classes. The Report also shows that the sum of $2,072,822 was paid for teachers' salaries alone, or an average rate of $4.25 per pupil. When this sum is carefully considered, it must be admitted that the people of this Province are making noble efforts in behalf of education. Teachers have a right to ask that the text-books which they are obliged to use shall be of such a character that the best interests of the school are subserved; but they should hesitate to ask for frequent changes, which must necessarily increase the burden of taxation, which is already heavy.

It may now be proper to consider the mechanical arrangement of text-books. The materials used in their making should be of the best available quality. The paper should be of reasonable thickness and tenacity, and of a colour that least wearies the eye to follow the printed page. The present authorized series fulfils these conditions in a fair degree. The binding should be *light*, so as not to give undue weight to the book; *strong*, so as to last as long as the printed page; and of *such materials* as not to make the price too high. According to the present prices, the public are justified in complaining that the binding is, in too many instances, of a rather questionable character, and that durability is by no means insured. Superior workmanship should be guaranteed; but whether this is to be secured by open competition or by direct interference of the Education Department, it is not my purpose to determine.

Permit me briefly to touch upon the purposes which text-books serve. It is evident that knowledge communicated by the lips of the living teacher has a freshness and vitality which no text-book can give it; consequently no text-book can remove the necessity of having a living teacher. Still, good text-books may be used with advantage to a school, more especially in the ungraded rural schools, where primary and advanced classes assemble to receive instruction from the same teacher. They present the object-matter of a branch of knowledge in a proper form for study, which is available to all the pupils, regardless of the irregularity of attendance of a large number of them. Where no text-books are used, much time is lost by the pupil in writing out the facts and principles orally communicated by the teacher. Since oral expression is of necessity rapid, misconceptions are liable to arise in the minds of the pupils, and occasionally statements are found in their note-books which were not communicated by the teacher. Besides, note-books are of a somewhat ephemeral character. Although young pupils do not necessarily require text-books, it is a convenience if they have them, as they have then the means of preparing what the books contain, in addition to the matter which the teacher presents. A very material consideration in teaching is the proper order of presenting the subjects of which the text-books treat, and a well-written series does that. In some schools where text-books are dispensed with, facts and principles are simply jumbled together, thus clogging the memory with disconnected fragments of knowledge, without language to make it known or power to use it for the accomplishment of important practical ends. It is advisable not to attempt to make text-books perform functions which do not properly appertain to them. When a teacher has made up his mind to *teach* a subject, the question as to what text-books should be used becomes a secondary consideration, and that it ought to remain. They are, at their best, but aids in teaching, and should be regarded as such. The teacher should know more than they contain. He may exact a close study of them by the pupils, but they should serve only as a guide to his own instruction. They should contain correct definitions, well-expressed rules, exact arguments, apt illustrations, and appropriate examples for careful investigation by the pupils. But a servile dependence on text-books will lose these advantages as effectually as they are lost without the use of them. This dependence is one of the great evils of our age, and any system tending to reduce it to a minimum should meet with the hearty support of all friends and well-wishers of our schools. More especially should the leading teachers of this Province make their voice heard and felt on this important matter through their local associations. By united effort much can be accomplished.

A text-book should present a complete outline of the subject of which it treats, from the point of view from which it is considered; and what constitutes a complete outline gives rise to a great diversity of opinion. No text-book can contain all that is known concerning a certain branch of knowledge, but it may contain all its leading facts and principles systematically arranged. But here is again the difficulty of deciding what are the leading facts and principles. "It is unlike a book of science which contains a statement of facts, an enumeration of experiments, a series of speculations, or an exposition of theories; but it contains a systematic arrangement of the known definitions, axioms, facts and truths of a science, with such a number of examples as may be deemed necessary to impress them upon the mind of the learner." In the selection of the examples it must be taken for granted that the major part of the work rests with the teacher, as no author, however careful in this department of his work, will undertake more than simply to indicate the course that a thoughtful teacher may advantageously pursue. Every author of a text-book aims at presenting the subject upon which he writes in such an attractive manner, that it shall recommend itself for favourable consideration by the lucid way in which the subject is presented. He must have a clear knowledge of the whole subject. He should leave much for the teacher to add and for the pupil to find out. Details should be mainly supplied by teachers and books of reference. He should have before him in mind the class of pupils for whom he writes, and write as he would talk to them. Now, it is obvious that not all educated persons are good talkers, although they may possibly be voluminous; hence it is not to be supposed that all are qualified to become reputable authors. Having the whole subject before them, they should select only that which is most valuable and most interesting. Interest in a book does not imply that everything in it should be explained or simplified. The most important truths should be presented in the most agreeable manner. The deepest interest is evoked for that which caused us the hardest labour to obtain. Text-books should be adapted to the capacity of the learners. If the higher and more difficult parts of the subject be placed in too close proximity to the more elementary parts, the pupils soon lose interest, and consequently make little progress. They cannot be expected to take much interest in what they do not understand. And why should we expect them to do it when we know that adults fail in this virtue, if virtue it be? The fault is not theirs, but that of the text-books, or of the teacher who is a servile follower of them. A large amount of time is wasted annually in this fruitless labour, and thousands of children are made to contract habits of idleness, if not of vice. It is impossible to ascertain the extent of the injury done to the youth of this country by neglecting to provide suitable work for each individual pupil during every hour of the school-day.

A uniformity of text-books aids very largely in the classification of the pupils of a school, while a diversity of them is an impediment to a complete classification. When the pupils of equal attainments have been supplied with the same kind of books, their formation into classes is comparatively easy. Uniformity makes teaching more effective. Anything that increases the effectiveness of teaching merits the serious consideration of every teacher. Frequently the remark is made that there is no material in the school to bring it into the front rank. Is the statement correct? Does it not generally indicate that there is a deficiency in the effectiveness of teaching? There are very few districts, if any, in which there is not sufficient mind-power to give the school a creditable standing if a suitable use be made of the text-books and the opportunities at command. Uniformity avoids that confusion of definitions and rules that must arise in a school where the books of several authors upon the same subject are in use. No two authors employ the same words for defining the same technical terms. Although each of the definitions may be strictly accurate, the employment of different words leads to uncertainty in the minds of the pupils as to which is correct. The elucidation of a principle is slightly different in different books. While this is commendable for the advanced student, it is inexpedient for the pupils in general. A fact is clearly stated by one author with reference to its importance, while another author states the same fact; but what the one regards as of primary importance, the other assigns to a subordinate position. Where the pupils observe this want of agreement with respect to what is essential to be studied, the interest soon flags in that particular subject. That which is true of one subject is equally true of all the subjects of the Public School programme. Since nearly the same subjects are treated of in all the text-books, "the teacher can assign a rule in Arithmetic, a part of speech in Grammar, a country in Geography, a fact in Natural Science, or a period in History by topics," and the pupils can learn them from the different text-books. But such a mode of reciting would greatly add to the teacher's labour, confuse the pupils, and clog the recitations; but it is a less evil than an excessive multiplicity of classes which would result from having each class recite from their particular text-book.

For upwards of thirteen years the present Readers have been used in the schools. Has experience proved that they are poorly adapted to the teaching of reading? Has the gradation from the easy to the more difficult parts of the subject not been regarded in their compilation? Are the selections not of a character to cultivate purity of thought and a taste for reading? These are questions which form the basis of an intelligent discussion of a revision or a change of Readers, and which I shall leave in the hands of this Association to deal with.

In comparing the various elementary Arithmetics, it is seen that the same rules are discussed in almost the same order—evidence that the authors of them agree as to what parts of the subject naturally follow one another, and conform to the development of the minds of the pupils. In every one of them the leading principles are so presented that there need be no great difficulty in teaching their application. To serve as a guide, a number of questions are added indicating the course that may be pursued. Much, however, is left to be supplied; and the best questions are usually those occurring in practical life. Any one of the authorized Advanced Arithmetics contains so much theory and practice as is requisite to become a good arithmetician. There are, undoubtedly, omissions in every one of them.

With respect to Grammar and Geography, there is certainly no lack of good text-books. If objections have to be formulated against them, they will partake of the nature of their being too diffuse rather than of containing too little. In these two subjects it may be well to follow the maxim, "Learn how to forget wisely."

With the exception of the Readers, which are open to a good deal of criticism, I maintain that the present series of authorized text-books is fairly adapted to the requirements of the Public Schools. Whenever any great advances have been made in any department of knowledge, and whenever it is found that the text-books are badly deficient in that department, then they ought to be revised, or new ones ought to be prepared. But in the ordinary course of events no great advances need be looked for that materially affect school life. It is true that great advances have been made in science; but it is not science, properly so termed, that has to be taught to about ninety-six per cent. of the pupils, but the rudiments of a few subjects, that they may, in after-life, become able to acquire a mastery of one or more departments of science. The radical changes that have taken place during the last score of years, and are now engaging the attention of the leaders of advanced thought, are largely in the direction of arriving at more enlightened methods of teaching the mass of the people how they can best train the rising generation to act their parts well upon this busy stage of life. For becoming familiar with those methods, it cannot reasonably be expected that any text-book should contain much information. It is mainly to be acquired by coming in contact with those leaders through the instrumentality of educational magazines, lectures, essays, etc.

Under existing regulations, the Education Department controls the class of text-books to be used in the schools by authorizing those giving evidence of being fitted for promoting the welfare of the pupils, or by withholding its sanction if not so regarded. So long as the Government invests that function in the Department will there be uniformity. Whether that ought to cease, and each series of text-books ought to stand or fall upon its own merits, is a question not easy to determine. The American system throws some light upon it. To enumerate all the Readers, Spellers, Grammars, Geographies, etc., that have been introduced into the schools of some of the Western States during the last twenty years, and discarded after a trial of a few years, would be a tedious task. Suffice it to say, that it not unfrequently happens that three and four different Readers are found in a school of less than forty pupils. A similar state of things exists with regard to Arithmetics, etc. No doubt each series has some new feature of excellence not found in the others. But do results show that, in consequence of those frequent changes, the attainments of the pupils there are superior to those here? There the school directors and teacher determine what books shall be introduced. A cursory observation at once shows that the average trustee in Ontario is a person not specially qualified to decide upon the merits of a text-book, even if it be but a First Reader. It is not assuming too much to say that the average Western school director is not possessed of a higher grade of intelligence than the average Ontario trustee. It can be readily inferred to what extent the best interests of the schools would be subserved if the trustees and teachers would have the selection of the text-books in their hands. If that power were delegated to the Inspector and trustees, the Inspector would often find his most sincere efforts misconstrued. Then, if the frequent changes of teachers and trustees, and the removal of parents from one section of the country to another, be taken into consideration, an opinion can be formed whether or not the Department should continue to authorize all the text-books, and retain uniformity throughout the Province. There are localities in which peculiar circumstances make it desirable that local option in the selection of text-books should be exercised. The present regulations are sufficiently elastic to admit of the supplying of the wants of such exceptional localities. Financially, uniformity has much to recommend itself to the favourable consideration of the teachers, although it is possible that in some cases they become subservient to the words of the text-books. It is frequently stated, and correctly so, that no two persons put precisely the same construction upon the same sentence. It therefore follows that the repetition of similar language in definitions and statements of principles does not necessarily involve a subservience to any text-book. Moreover, it is almost impossible for any teacher to retain his position for any lengthy period unless his methods of teaching are in accord with the best at present known.

In viewing the subject from different standpoints, I am strongly of the opinion that the teachers of this Province should, by all legitimate means, sustain the Education Department in continuing to make the authorization of text-books a necessary preliminary to their introduction into the schools. We are justly proud of our school system, and of the high position our schools occupy when compared with those of other countries; but we too often fail to consider how much uniformity of text-books has contributed to this desirable state of things.

MINUTES

OF THE

TWENTY-SECOND ANNUAL CONVENTION

OF THE

Ontario Teachers' Association,

HELD IN THE

PUBLIC HALL OF THE EDUCATION DEPARTMENT, TORONTO,

AUGUST 8th, 9th, and 10th, 1882.

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1882.

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1882–1883.

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MINUTES

OF

TWENTY-SECOND ANNUAL CONVENTION

OF

Ontario Teachers' Association,

HELD IN THE

PUBLIC HALL OF THE EDUCATION DEPARTMENT, TORONTO,

On the 8th, 9th, and 10th August, 1882.

Tuesday, August 8th, 1882.

The Convention met at 11 a.m.

The President, Mr. A. McMurchy, in the chair.

Mr. James Duncan read a portion of Scripture, and led in prayer.

Moved by Mr. F. S. Spence, seconded by Mr. Duncan, That as the Minutes of last Convention have been printed and placed with the members, they be considered as read and adopted.—*Carried.*

Mr. R. W. Doan moved, seconded by Mr. J. L. Hughes, That Mr. Parlow be appointed Min. Sec.—*Carried.*

Communications were read from the Hon. A. Crooks, in reference to Superannuation Fund, and from Messrs. Somerset and R. Lewis, regretting their inability to be present at the Convention.

On motion of Mr. W. Rannie, seconded by Mr. J. Campbell, the communication of Hon. Mr. Crooks, was referred to the Legislative Committee.

The Treasurer, Mr. F. S. Spence, presented his Annual Report.

Moved by Mr. Hughes, seconded by Mr. J. Campbell, That the Report be received and referred to a committee to be appointed by the President.—*Carried.*

The Convention adjourned.

AFTERNOON SESSION.

The Convention assembled at 2.10.

The President in the chair.

The Minutes of the forenoon session were read and confirmed.

The President appointed Messrs. R. Alexander, E. Scarlett, and J. A. Clarke, a committee to audit the Treasurer's Report.

Mr. Hughes reported verbally the action of the Legislative Committee, and expressed the intention of that Committee to report more fully at a later stage.

Mr. Spence having been introduced to the Association, delivered an address on "School Hours and Vacations."

After a discussion, in which Messrs. Ferguson, Hughes, and Clendenning took part, it was

Moved by Mr. Scarlett, seconded by Mr. Knight, and carried, That a cordial vote of thanks be presented to Mr. Spence for his valuable address.

Mr. Hughes moved, seconded by Mr. Michell, That in the opinion of the Association, Trustee Boards should have no option as to the length of the school vacations during the year, but that they should be allowed, in conjunction with the Public School Inspectors, to decide at what period that portion of the holidays regarding which an option is at present allowed, should be granted in their several sections.

It was moved, in amendment, by Mr. A. Campbell, seconded by Mr. McIntosh, That all the words in the original motion after "That in the opinion of the Association," be struck out, and the following substituted, "the clause granting an option of opening Public Schools on the 3rd August should be repealed."

In amendment to the amendment, moved by Mr. Donovan, seconded by Mr. Scarlett, That the clause granting an option of opening Public Schools on the 3rd August should be repealed; that the vacations should begin and close on a Saturday.

Remarks on the several proposals were made by Messrs. Michell, J. Campbell, Clendenning, Maxwell, Johnston, Hughes, Powell, Wilkins, A. Campbell, Fotheringham, Welch, Donovan, Spence, McIntosh, Carson, Alexander, Forrest, Suddaby, McQueen, and Munroe.

Mr. Campbell's amendment was carried.

Mr. Clendenning moved, seconded by Mr. Powell, That the present provision of the School Law entitling the teacher to salary for the vacation immediately following his term of service, be repealed, and that each teacher be remunerated according to the number of days he has served compared with the total number of teaching days in the whole year.

A point of order being raised, it was moved by Mr. McAllister, seconded by Mr. J. Campbell, That the motion of Mr. Clendenning be admitted for consideration.—*Carried.*

After the motion was discussed by Messrs. Johnston, Knight, Carson, Spence, Alexander, Powell, McIntosh, Scarlett, and Maxwell, it was voted upon and declared *lost.*

The Convention adjourned at 4.50.

EVENING SESSION.

The Convention re-assembled at 8 p.m.

The President in the chair.

The Minutes of the afternoon session were read, and, on motion, confirmed.

The chair having been taken by Vice-President McHenry, the President read his Annual Address.

Mr. Alexander moved, seconded by Mr. Duncan, That the thanks of the Association be presented to the President for the able and instructive address he has delivered.—*Carried.*

It was moved by Mr. Alexander, seconded by Mr. Strang, That the President's address be referred to a committee consisting of Messrs. Millar (St. Thomas), Johnston (Cobourg), and J. H. Smith, to report at this Convention.

The names of the mover and seconder having been added, by desire of the Association, the motion passed.

The Report of Audit Committee was presented:

TORONTO, August 8th, 1882.

The Audit Committee beg leave to report that they have examined the accounts and vouchers of the Treasurer, and find them carefully and correctly kept.

All of which is respectfully submitted.

R. ALEXANDER,
E. SCARLETT, *Audit Committee.*
J. A. CLARKE,

Moved by Mr. Alexander, seconded by Mr. Mitchell, That the Report of the Audit Committee be received and adopted.—*Carried.*

Reports were received respecting County Associations, from—

Mr.	Fotheringham	North York	Representing	70	Members.
"	J. H. Smith	South Wentworth.	"	190	"
"	G. E. Wightman	South Essex	"	65	"
"	Munroe	South Perth	"	80	"
"	Jas. Ferguson	East Huron	"	50	"
"	O. S. Hicks	South Hastings	"	120	"
"	T. Girardot	North Essex	"	100	"
"	R. Coates	Halton	"	71	"
"	Parlow	Ottawa	"	50	"
"	Sneath	West Huron	"	70	"
"	Michell	Lanark	"	140	"
"	Ritchie	West Bruce	"	100	"
"	Robt. Grant	Welland	"	100	"
"	W. McIntosh	North Hastings	"	65	"
"	G. D. Lewis	Waterloo	"	100	"
"	Forrest	South Simcoe	"	35	"
"	Mr. Henstridge	Frontenac	"	145	"
"	Petrie	South Wellington and Guelph	"	120	"
"	J. Dearness	London	"	113	"
"	Spence	Toronto	"	150	"
"	J. Millar	Elgin	"	100	"
"	J. S. Carson	Middlesex	"	113	"
"	Jas. Bowerman	Lennox and Addington	"	100	"
"	C. K. Newcombe	East Lambton	"	85	"

The Convention adjourned at 10 o'clock.

Wednesday, August 9th, 1882.

The Convention assembled at 2 p.m.

The President in the chair.

The proceedings opened with reading of Scriptures and prayer, by Rev. C. Worrell.

The Minutes of previous session were read and confirmed.

Moved by Mr. Hughes, seconded by Mr. J. A. Clarke, That Messrs. Fotheringham, Johnston, (Belleville) Duncan, Alexander, Miller, (St. Thomas) and McHenry, be a committee to prepare a suitable resolution expressing the views of this Association regarding the death of the late Dr. Ryerson, and that the resolution be engrossed and forwarded to the family of the deceased gentleman.—*Carried.*

Mr. Powell gave notice that he would move, seconded by Mr. D. F. Ritchie, That in the opinion of this Association it would be advisable for the Minister of Education to appoint professional examiners to read the papers of all candidates for entrance to High Schools, Intermediate Certificates, and also Second and Third-class Teachers' Certificates.

An address on "How to Make Teachers' Associations More Useful," was delivered by Mr. G. W. Ross, M.P.

In the discussion which followed, Messrs. Clendenning, Brebner, Donovan, Powell, Johnston, McIntosh, McKinnon, J. H. Smith, Boyle, and Rev. G. Grant, took part.

It was moved by Mr. Powell, seconded by Mr. Munroe, and carried unanimously, That a vote of thanks be given to Mr. Ross for his excellent address.

Moved by Mr. Smith, seconded by Rev. Mr. Grant, That a committee consisting of Messrs. G. W. Ross, Coates, (Halton), McKinnon, Hodgins (Stratford), and Robt. Grant (Welland), be appointed to report to-morrow on "How to make Associations more successful."

The motion was amended by adding the name of the mover, and then adopted.

A class of 24 young children (12 of each sex), from the Orphans' Home, was put through a series of musical exercises, by their teacher, Mrs. Riches. They showed a very creditable knowledge of staff notation, both in reading and writing, and sang several songs nicely.

Mr. McAllister moved, seconded by Mr. Knight (Victoria)

That a vote of thanks be presented to the children for the treat given the Association, and to their teacher, Mrs. Riches, for her kindness in drilling the class before the Association.

The motion was adopted by a standing vote.

The Convention then adjourned.

EVENING SESSION.

The Convention re-assembled at 8 p.m.

The President in the chair.

The Minutes of previous session were read and confirmed, on motion of Mr. Knight (Victoria), seconded by Mr. Robt. Grant (Welland).

Principal McCabe was introduced to the Association. He addressed the members on "The School-master Abroad."

Moved by Mr. R. Alexander, seconded by Mr. Unger, That a hearty vote of thanks be presented to Mr. McCabe for his excellent address.

The motion was unanimously adopted.

In the discussion which followed, remarks were made by Messrs. Ross, J. H. Smith, Spence, Coates, and Forrest.

Mr. Miller presented the following report of the Special Committee on the President's Address:

To the President and Members of the Ontario Teachers' Association,—

Your Committee, having had under consideration the President's Address and the suggestions contained therein, beg to report:

(1) That the disadvantages arising from the uncertainty of the teacher's tenure of office in rural schools, are to be deplored; the remedy suggested in the Address is in accordance with the form of agreement prescribed in Appendix F of the Compendium of the School Law.

(2) That in view of the very great evils which are seen to have resulted in many parts of the United States and other countries from the introduction of politics into educational matters, your Committee

trusts that all true friends of our school system will unite in discountenacing every influence tending in that direction.

(3) That the number of schools opening with religious services is happily on the increase ; and, with the object of attaching greater importance, in our High and Public Schools, to good moral training based on Christian principles, your Committee is of the opinion that it is desirable that a suitable selection of Scripture lessons should be incorporated with our Readers, and that the sentiments of the President's Address are strongly endorsed, "that any one who could not reverently, humbly, and lovingly read the Word of God, was not fit for a teacher."

[Signed] JOHN MILLAR, *Chairman.*

The report was received, on motion of Mr. Millar, seconded by Mr. J. H. Smith.

The several clauses were taken up separately, and adopted, on motion of Mr. Millar, seconded by Mr. J. H. Smith.

Remarks were made on the several clauses by Messrs. Millar, McAllister, Williams, McIntosh, Donovan, Spence, Fotheringham, McKinnon, Strang, and Johnston.

A vote of thanks was passed to the Committee, on motion of Mr. McAlister, seconded by Mr. Campbell.

The Convention adjourned at 10.20 p.m.

Thursday, August 10th, 1882.

The Convention assembled at 2 p.m.

The President in the chair.

A portion of Scripture was read and prayer offered, by Mr. Duncan.

The Minutes of previous session were read and confirmed.

The President introduced Prof. Goldwin Smith, who addressed the Association.

Moved by Mr. A. Campbell, seconded by Mr. R. Alexander, That a hearty vote of thanks be presented to Prof. Goldwin Smith for his interesting and instructive address. —*Carried unanimously.*

Mr. Millar presented the Resolution prepared by the Special Committee appointed on Wednesday afternoon:

Resolved, That the death, in the providence of God, of Dr. Ryerson, ex-Superintendent of Education for Ontario, is to the members of the Ontario Teachers' Association a matter of profound regret. His well-nigh irreparable loss reminds us of the eminent services which, for more than half a century, he rendered to our country, beginning at a time when the importance of laying, broad and deep, the foundations of a free, enlightened, and prosperous nation occupied the attention of few, and seemed far beyond the reach of any. But, grasping the noble idea, and possessing the breadth and tenacity of purpose, he chose as his life-work the lofty design of giving to our country a unified and harmonious system of free and universal education for the poorest and the richest, the humblest and the highest, which should be surpassed by none, if equalled by any, in the world. How wisely conceived, how nobly achieved, this purpose was, our present system of public, high, and collegiate instruction stands, a lasting and a lofty monument.

To the family of this princely pioneer educationist, we tender our sincerest sympathy in their sad loss, and are happy to believe that their sorrow is alleviated by the consciousness that he has been gathered as a shock of corn, fully ripe, into the garner.

Mr. Millar, seconded by Mr. Dobson, moved, That the Resolution be received and adopted.—*Carried.*

Professor McVicar having been introduced, read a paper on the "Inductive and Deductive Methods in Education."

Mr. Merchant moved, seconded by Mr. Donovan, That a cordial vote of thanks be presented to Mr. McVicar for his able address.—*Carried unanimously.*

The Secretary read the Report of the Board of Directors, as follows:

The Board of Directors beg leave to report that they recommend that the following gentlemen be elected to fill the offices of this Association for the ensuing year:

President—MR. ARCHIBALD MCMURCHY,
Vice-Presidents—1. MR. GEO. H. ROBINSON.
2. MR. WM. RANNIE.
3. MR. JOHN DEARNESS.
Recording Secretary—MR. R. W. DOAN.
Corresponding Secretary—MR. A. PURSLOW.
Treasurer—MR. W. J. HENDRY.

All of which is respectfully submitted.

Moved by Mr. Spence, seconded by Mr. Duncan, That the Report of the Directors be received and adopted.—*Carried unanimously.*

It was moved by J. Donovan, seconded by Mr. McIntosh, That the topics for discussion at the annual meetings of this Association be prepared and printed as early as possible in the year, and that a copy be sent to each local association not later than the 1st of March, in order that the teachers of the Province may express their opinions on any proposed changes in the School Law and Regulations.—*Carried.*

A brief summary of proceedings of the Public School and High Schools' Section, were read by the respective Secretaries

The Convention adjourned at 4.15 p.m.

EVENING SESSION.

The Convention assembled at 8 p.m.

The President in the chair.

The Minutes of previous session were read and confirmed.

The President introduced to the Association Mr. Howland, who addressed the members on the subject, "Temperance in Public Schools."

Moved by Mr. Bryant, seconded by Mr. Spence, That a cordial vote of thanks be given by this Association to Mr. Howland for the excellent address we have listened to.—*Carried.*

On motion of Mr. Spence, seconded by Mr. Bryant, That in view of the appalling extent of the evils of intemperance, and the special dangers and temptations to which young people of the present day are exposed, this Association earnestly urges upon all the teachers of the Province the duty of persistently and carefully impressing upon their pupils the stern facts of science in relation to the physiological effects of alcohol, and the advantages of absolutely securing themselves, by, as far as they possibly can, habits of true temperance, from the awful moral and physical degradation to which the drinking customs of to-day so often lead.—*Carried.*

Messrs. Millar, Spence, Bryant, Alexander, Strang, and J. Campbell, briefly spoke to the question.

Mr. Maxwell read a brief summary of the work accomplished in the Public School Inspectors' Section.

The motion of which Mr. Powell had given notice, was, with his consent, laid over.

Moved by Mr. Alexander, seconded by Mr. Duncan, That the thanks of this Association be tendered to the daily newspapers for publishing each day very full and accurate reports of the meetings; to the Grand Trunk, Great Western, Credit Valley, Midland, and Canada Southern Railways, for the reduced passenger rates allowed to members in attendance here, and to the Minister of Education for his kindness in allowing the Association the use of the rooms in the Education Department.—*Carried.*

Moved by Mr. McAllister, seconded by Mr. Munroe, That a hearty vote of thanks be and is hereby tendered to Mr. F. S. Spence for his valuable services during the last four years as Treasurer.—*Carried.*

Mr. Alexander moved, seconded by Mr. McAllister, That the Executive be asked to instruct the Secretary of each Section to collect the fees due from each member of the Section.—*Carried.*

After singing the National Anthem, the President declared the Convention closed.

PUBLIC SCHOOL SECTION.

THEATRE, NORMAL SCHOOL, TORONTO,

August 8th, 1882.

The first meeting of the Public School Section of the Provincial Teachers' Association was held in the Theatre of the Normal School this morning, beginning at 11.50.

The Secretary stated that the Chairman of the Section was unable to be present, being away on account of ill-health. Mr. W. J. Hendry, of Yorkville, was chosen to preside over the meeting.

On motion, the Minutes of the Section, having been printed, were to be considered as read.

Mr. J. Duncan moved, and Mr. Campbell seconded, That a committee consisting of Messrs. Doan, Rannie, and Hendry obtain another room for the meeting of the Section.—*Lost.*

After some conversation in regard to the arrangement of the work of the Section, and settling that the subjects be taken up in the order published in the programme, unless found advisable to take some other order, the Section adjourned, to meet again at 9 a.m. to-morrow.

August 9th, 1882.

Section met at 9 a.m. Mr. Hendry in the chair.

Mr. Robt. McQueen read a portion of Scripture and engaged in prayer.

The Minutes of the previous meeting were read and approved.

Mr. R. W. Doan read Mr. Lewis' paper on Semi-annual Examinations.

Mr. Richie moved, and Mr. Munro seconded, a vote of thanks to Mr. Lewis for his address, which was carried, and Mr. Doan was instructed to convey the same to Mr. Lewis.

An animated discussion ensued, by Messrs. Campbell, Alexander, Rannie, McMaster, Donovan, Sneath, Grant, Willis, Barber, A. L. Leitch, Duncan, Suddaby, and nearly all the members present.

Several motions were proposed, when it was finally agreed that the movers and seconders of the several motions be a committee to draft a new motion, which was shortly after presented and carried. The motion was as follows:—Moved by Mr. M. P. McMaster, and seconded by Mr. A. Barber, That oral examinations on public examination days are a benefit in our Public Schools; but that they should not partake of the nature of exhibitions which have no educative value, and should be confined to the work gone over during the term.—*Carried.*

It was then arranged that Revision of the Programme be to-morrow's work, and in the meantime Messrs. Duncan, McAllister, and McQueen be a committee to examine the Programme and bring in a report.

At 11.20 Mr. McAllister spoke on the subject of Granting Higher Certificates to thoroughly successful teachers of long standing in the profession.

Mr. Sneath moved, and Mr. David Johnson seconded, a vote of thanks to Mr. McAllister for his able and instructive address.—*Carried.*

A very spirited discussion ensued, when Mr. R. Alexander moved, and Mr. Levi Clark seconded, That in the opinion of this Section, after a teacher has obtained any class of a certificate he shall, after five years' *successful* teaching from the time of obtaining his certificate, be entitled to have his certificate raised one grade; and on a further service of three years' successful teaching, be entitled to have his certificate raised another grade; but every teacher must pass from class to class by examination.—*Carried.*

August 10th, 1882.

Section met at 9 a.m., Mr. Hendry presiding. Minutes of the previous meeting were read and adopted.

Mr. Duncan read the report of the committee appointed to examine the recently-issued Programme of Studies for Public Schools. On motion the report was received and the Section went into Committee of the Whole, Mr. Duncan in the chair. The Programme was under consideration till eleven o'clock, when the election of officers for the following year was proceeded with. The following were elected:

Chairman	W. RANNIE	Newmarket.
Secretary	F. C. POWELL	Kincardine.
Committee of Management	SAMUEL McALLISTER JOHN MUNRO ROBERT ALEXANDER ROBERT McQUEEN JOS. S. CARSON	Toronto. Ottawa. Galt. Kirkwall. Strathroy.
Legislative Committee	R. W. DOAN JAMES DUNCAN E. D. PARLOW	Toronto. Windsor. Ottawa.

Messrs. Willis, Donovan, McMaster, and Leach were appointed a committee to enquire into and report on Mr. Blue's circular to-morrow morning.

The subjects of the High School Entrance Examination, and Revision of Text Books, were laid over for consideration next year.

Mr. Parlow moved, and Mr. Miller seconded, That Revision of the Programme be proceeded with to-morrow morning at 8 o'clock.—*Carried.*

A vote of thanks was then tendered to the retiring officers for their past services, and also to Mr. Hendry for his able services as chairman during the present and previous sessions.

Section then adjourned, to meet to-morrow morning at 8 o'clock.

Friday, August 11th, 1882.

Section met at 8 a.m. After long and careful consideration of the Programme of Studies, and the introduction of various amendments,

Mr. Alexander moved, and Mr. Parlow seconded, That the amended report of the committee on the Regulations be adopted.—*Carried.*

The report was as follows:

1. Clause. That in reference to the power conferred upon Public School Boards to make changes in the course of study, this Association approves of the principle embodied therein, but would respectfully recommend that no option be permitted in the subjects of Reading, Spelling, Writing, Arithmetic, Drawing, Geography, Grammar and Composition, History, Temperance and Hygiene, Algebra, Geometry, and Mensuration; and that in case of difference between the Teacher and Trustees upon any proposed changes, the Inspector should be appealed to for his decision.

Mr. Campbell moved, and Mr. Alexander seconded, That as the printed Regulations have been so short a time before the Public-School Section for their consideration, they do not feel that a properly-matured opinion on the general question of the influence of the amended Programme of Study in this sitting can be arrived at.—*Carried.*

Moved by Mr. Parlow, seconded by Mr. Sneath, That the Executive Committee be requested to send a copy of the Minutes of the Association as soon as printed to each member of this Association.—*Carried.*

Mr. Alexander moved, and Mr. Miller seconded, That the Minister of Education be respectfully requested to hold the new Regulations in abeyance for one year, so that the teachers of the country may more fully discuss them.—*Carried.*

Adjournment moved by Mr. Powell, seconded by Mr· Campbell.

W. Rannie,
Secretary.

MINUTES OF HIGH-SCHOOL MASTERS' SECTION, ONTARIO TEACHERS' ASSOCIATION, TORONTO, AUGUST, 1882.

Tuesday, August 8th, 1882.

The members met in the Minister's Room at 11.45 a.m., Tuesday, August 8th. The Chairman, Mr. McHenry, Principal Cobourg Collegiate Institute, in the Chair.

Moved by Mr. McMurchy, second by Mr. Millar, That Mr. G. H. Robinson be appointed Secretary.—*Carried.*

Mr. J. Millar was introduced, and addressed the Section on "The Relation of the High School to the University."

The hour of adjournment, 12 a.m., having arrived, it was on motion agreed to adjourn until 9 a.m., Wednesday.

Members present: Messrs. McHenry, McMurchy, Bryant, Hunter, Miller, (Bowmanville), Miller, (St. Thomas), Worrell, Smith, Petch, Dr. Forrest, McIntosh, Robinson.

Wednesday, August 9th, 1882.

The High-School Section met pursuant to adjournment at 9 a.m., in the Minister's Room.

Mr. McHenry in the Chair.

Minutes of Tuesday's meeting were read and confirmed.

The discussion upon the "Relation of the High School to the University," was resumed.

Mr. Strang condemned the character of certain examination papers of Toronto University.

Mr. McMurchy, High School Masters' Representative Senate, Toronto University, gave some explanations respecting the method of appointing Examiners and the power and duties of Examiners at the Toronto University.

Mr. Merchant spoke in reference to the clashing of Departmental and University examinations.

A conversation ensued respecting the time of holding examinations in which, Messrs. McMurchy, Robinson, Bryant, and others took part.

It was moved by Mr. F. W. Merchant, and seconded by Mr. J. A Clark, That this High-School Section call the attention of the Minister of Education to the fact that the Intermediate is generally concurrent with the Pass and Honour Examinations of Toronto University Junior Matriculation, and Women's Local Examinations, and it is the opinion of this Section that it would be better otherwise as there are a great many High School students who wish to try both examinations.—*Carried.*

It was moved by Mr. J. Miller, seconded by Dr. Forrest, That the attention of the University Senate be called to the desirability of extending the system of Local Examinations for Ladies, so as to include male students for Matriculation with Honours.

After discussion it was decided to defer further consideration of this matter until next year.

The discusion started by Mr. Miller respecting University examiners and examinations was continued, Messrs. Bryant, Olliver, and Clark taking part.

It was moved by Mr. Bryant, and seconded by Mr. Petch, That a Committee consisting of Messrs. Robinson, Strang, Millar, (St. Thomas) Olliver, and the mover, be appointed to prepare a Resolution concerning the advisability of the University issuing more specific instructions to its examiners for Junior and Senior Matriculation, in regard to the manner in which examination papers are to be set and values assigned; such Resolution to be submitted to this Section at to-morrow's session.—*Carried.*

Mr. G. H. Robinson, Principal of Whitby Collegiate Institute, read a paper on "The Proposed Changes in the Intermediate."

A discussion followed in which Messrs. Clark, Williams, Millar, (St. Thomas) McMurchy, Ellis, Bryant, Strang, Griffin, Grant, Hunter, Merchant, Olliver, Dr. Forrest, and others took part.

It was moved by Mr. Robinson, and seconded by Mr. Clark, That Messrs. McMurchy, McHenry, Strang, Bryant, Knight, Hunter, and the mover be a Committee to embody the suggestions of the High School Masters respecting the Intermediate and High School curriculum in a Report, and to report to this Section at its next meeting.—*Carried.*

A communication from the Minister of Education, in reference to misapprehensions that had arisen respecting the force of certain recent Regulations *re* High School Assistant Masters was received and read.

On motion the Section adjourned to meet in the same place, on Thursday, at 9 a.m.

Members present at this session: Messrs. McHenry, McMurchy, Knight, Strang, Millar, (St. Thomas) Miller, (Bowmanville) Bryant, Petch, Clark, Dr. Forrest, Williams, Hunter, Robinson, Morgan, Smith, Hunter, (Barrie) Olliver, Worrell, Wightman, Ellis, Sinclair, Grant.

Thursday, August 10th, 1882.

The Section met pursuant to adjournment.

Minutes of Wednesday's session read and confirmed.

It was moved by Mr. J. Miller, and seconded by Mr. Hunter, That a Committee consisting of Messrs. Carscadden, Grant, Williams, and the mover be requested to frame a Resolution respecting the death of S. A. Marling, M.A. Inspector of High Schools.—*Carried unanimously.*

Mr. Knight presented the Report of the special Committee on the Intermediate and High-School curriculum.

On motion the Report was received and read.

On the motion duly seconded to adopt the Report a discussion arose in which Messrs. McMurchy, Grant, Olliver, Clark, Williams, Strang, Bryant, Robinson, Miller, and Dr. Forrest took part.

It was moved by Mr. Olliver, seconded by Mr. Williams, That the Report be laid on the table.

It was moved by Mr. Strang, seconded by Mr. Clark, that the Report as received be amended as follows:—That in view of the short time the new Regulations have been before Masters for consideration your Committee do not feel disposed to express a properly matured opinion on the general question of the influence of the amended programme of study in the secondary schools, but at the same time would beg to report the following Resolution:—That the Secretary be authorized to communicate with the Minister and represent to him that in the opinion of this Section, in the Intermediate programme, History and Geography should be removed from the optional to the obligatory list, and that inasmuch as it will be difficult for the present for schools to provide properly qualified teachers in Drawing, that Drawing be included in 7 (e) so as to read: "Any two of the following form: French, German, Music, and Drawing." One of which should be French or German, and that the clause numbered 2 (2) on page 19 be amended in harmony with the foregoing.—*Carried.*

Mr. Knight, Principal of Kingston Collegiate Institute, read a paper on Legislative aid to secondary education.

A discussion followed in which Messrs. Hunter, Grant, Williams, Miller, Bryant, McMurchy, Olliver, Ellis, Petch, Robinson, Dr. Forrest, Wightman, Carscadden, Dobson, and others took part.

It was moved by Mr. Bryant, and seconded by Mr. Strang, That inasmuch as the proposed scheme will bear hardly upon the smaller schools, and also upon many of the larger schools, which have been doing work worthy of Government aid, therefore, the High School Section would respectfully recommend that the Minister of Education should modify his proposed scheme as follows:—

(1) Every High School to receive a fixed grant of $500.

(2) Every High School employing two (2) teachers to receive in addition 25% of excess of salaries above $1.500 to $2.000, *i.e.*, $125 for maximum allowance under this head.

(3) In addition every High School employing three (3) teachers to receive 40% of excess of salaries above $2,000 up to $4,500, *i.e.*, $1,000 as a maximum under this head.

(4) Every Collegiate Institute to receive a fixed grant of $500.

(5) In addition every Collegiate Institute to receive 20% of salaries in excess of $5,000 up to $6,250, *i.e.*, $250 as a maxmium grant under this head.

Furthermore, that if the Minister cannot see his way to the adopting of this scheme, the Section is of opinion that it should be adopted in spirit, so that the grant should be distributed in recognition of the claims of the smaller schools, and that the encouragment given by the Government should be continued from the smallest to the largest and best-equipped schools.—*Carried.*

Messrs. Williams, Hunter and Bryant were appointed a committee to wait upon the Minister, and lay before him the views of the Section as embodied in the Resolution.

Mr. Bryant presented the Report of the Special Committee on University examinations.

Report received and adopted.

Mr. McHenry, the Chairman having been summoned to attend a meeting of the Executive Committee, on motion Mr. Williams, Principal Collingwood Collegiate Institute, was appointed Chairman, *pro tem.*

Mr. Carscadden presented the Report of the Committee appointed to draft a resolution respecting the death of S. A. Marling, M.A., Inspector of High Schools.

Report received and read.

On motion of Mr. Carscadden, seconded by Mr. Miller, the Report as read was adopted, and the Secretary was instructed to send a copy to Mrs. Marling.

A conversation arose respecting the proposed changes in qualification of Assistant Masters in High Schools. No resolution was offered; the sense of the session seemed to be that a change from the old method was necessary, but that the proposed regulations were too stringent.

Moved by Mr. Strang, seconded by Mr. Miller that the Executive Committee for the next year be composed of Messrs. Robinson, Bryant, Olliver, Hunter, and Inspector Deerness, and that the Legislative Committee be composed of Messrs. McHenry, Purslow, and McMurchy.—*Carried.*

On motion the Section adjourned *sine die.*

MINUTES OF PUBLIC SCHOOL INSPECTORS' SECTION OF THE ONTARIO TEACHERS' ASSOCIATION.

Tuesday, August 8th, 1882.

The Section met in Dr. Davies' private room, in the Normal School building, at 11.30 a.m.

Present—J. S. Carson, Chairman; Messrs. Greer, Clendenning, Summerby, Smith, Barnes, Knight, Scarlett, Hughes, and Maxwell.

Resolved, that the Minutes of last session, as printed, be adopted.

Mr. Carson introduced the subject, "How to make Teachers' Associations more useful." After some discussion, it was resolved to adjourn until 9 o'clock a.m., Wednesday, when the discussion should be resumed.

Wednesday, August 9th, 1882.

The Section met at 9 a.m., as per adjournment. Present—J. S. Carson, Chairman; Messrs. McIntosh, Dearness, Greer, Harrison, McKinnon, Knight, Barnes, Fotheringham, Scarlett, Maxwell, Clendenning, Brebner, Clapp, Gordon, Ross, Craig, Girardot, Summerby, Michell, Hughes, Smith, Johnson, and Campbell.

Resolved, That a Committee consisting of Messrs. Dearness, Smith, and Brebner be appointed to draw up a resolution embodying the views of the Inspectors concerning the above subject, and to report to this Association on Thursday morning.

Mr. McKinnon introduced the subject, "Uniform Promotion Examinations." After considerable discussion, it was resolved that the discussion should be continued on Thursday morning.

Resolved, That the Secretary's account be handed to the Treasurer for payment.

Resolved, That Messrs. Carson, Scarlett, and Barnes be a Committee to report on methods of distributing the School Fund to rural Schools.

Thursday, August 10th, 1882.

Section met at 8 o'clock a.m. Present—J. S. Carson, Chairman; Messrs. Knight, Greer, Little, McKinnon, Gordon, Burrows, Brebner, Clapp, Clendenning, Barnes, Harrison, Girardot, Maxwell, McKee, Johnson, Dearness, Fotheringham, McFall, Scarlett, Michell, Craig, Smith, Summerby, and Campbell.

Minutes of previous meetings were read and confirmed.

Mr. Carson resumed the discussion on Promotion Examinations.

Resolved, That in view of the full and helpful discussion on Uniform Promotion Examinations, this Section, on the whole, feels that these examinations are well calculated to help the systematic and uniform education of the public school children, and should be adopted generally, avoiding, however, the danger of making success at them, instead of the development of the intellect and character of the children, the great end and aim of teaching.

OFFICERS ELECTED.

Chairman	JOHN DEARNESS	London.
Secretary	D. A. MAXWELL	Amherstburg.
Directors	MILLER	St. Thomas.
	BARNES	Forest.
	McKINNON	Brampton.
	CLENDENNING	Walkerton.
Legislative Committee	J. L. HUGHES	Toronto.
	R. LITTLE	Acton.
	D. FOTHERINGHAM	Aurora.

The subject of "Public School Programme" was then discussed.

Resolved, That in the opinion of this Section the subjects—Reading, Spelling, Writing, Arithmetic, Grammar, Composition, and Geography should be made compulsory in all public schools.—*Carried unanimously.*

Resolved, That in the opinion of this Section, the recent regulation of the Education Department, giving local Boards of Trustees power to determine what shall, and what shall not be taught in the public schools, will have a very injurious influence on these schools, and should be rescinded.

Resolved, That the School Fund should be apportioned by the Inspectors, who should notify the treasurers and trustees of the amounts apportioned to the respective school sections, and that the treasurer be then empowered to pay these respective amounts on the order of the trustees.

Mr. Carson presented the report of the Committee on the Distribution of the School Fund in Rural Sections.

It was resolved that the report be received, and that the subject of the "Basis of Distribution of the School Fund" be placed on the programme for the next meeting of this Section of the Association.

The following report on Teachers' Association was received and adopted :—

I. In order to secure a full and regular attendance at these Association Meetings,

(*a*) The programme should be made interesting and eminently practical.

(*b*) That Inspectors should use every suitable opportunity, in meeting with trustees and teachers, to impress the usefulness of these meetings on those who attend them, and to urge on the teachers their duty to themselves and their profession, in contributing to the work of these meetings.

(*c*) That some means should be adopted to bring the absence of the teachers from the regular meetings of the Association to the knowledge of the trustees.

(*d*) That periodicals or books, on professional work, should be supplied to the members, in whole or in part, from the funds of the Association.

(*e*) That in counties where a central point is not easily reached, a County Convention should be held once a year, and a local Convention, in each township, once a year.

II. Also in regard to the programme.

(*a*) The non-professional part should be subordinated to the professional.

(*b*) It is desirable that classes of pupils from the public schools should be brought to the meeting, for the purpose of practical illustration of methods of teaching ; where this is impossible, a good alternative is to form classes of the teachers in attendance.

(*c*) The Association should provide means for assisting members in their individual difficulties by opening a question drawer. The interest seems to be best maintained when questions are admitted up to the end ot the first day of the Convention, and answered at some time on the second day.

(*d*) That if Inspectors would aid each other, both by their personal assistance and by recommending those teachers who have shown their fitness for discussing certain subjects, a conductor of institutes would not be required.

Resolved, That, in the opinion of this Section, it is advisable that the Professional Examination of Third-Class Teachers should be uniform throughout the Province, and that the questions should be prepared by a Committee of Public-School Inspectors.

Resolved, That whereas frequent changes in the school law and regulations are found to have an unsettling and injurious effect upon our Public Schools, this Section would respectfully suggest that the proposed changes should be published one year before their adoption, thus affording an opportunity to County Councils, School Boards, Inspectors, and Teachers to express their views as to the probable practical effect of such proposed changes, and thus secure greater efficiency and permanency in our legislation.

TREASURER'S STATEMENT FOR 1881-2.

RECEIPTS.

Balance from last year	$183 76
Sale of Minutes	60 73
Advts. in "	23 00
Members' fees	37 50
Government Grant	200 00
Interest	7 55
	$512 54

DISBURSEMENTS,

Publishing Minutes	$100 20
Expenses of Convention, 1881	21 45
" of Legislative and Executive Committees	39 35
Printing account	22 05
Postage and Sundries	13 38
Balance on hand	316 11
	$512 54

PAPERS

READ BEFORE

THE ONTARIO TEACHERS' ASSOCIATION,

1882.

PRESIDENT MACMURCHY'S ADDRESS.

LADIES AND GENTLEMEN,—

For some years I have been observing the objections made in reference to the administration of the school laws in English-speaking communities, as well as the changes and modifications effected, to secure a more efficient and harmonious working of the various school systems in these different countries. The purpose was two-fold : To ascertain the opinions of the practical educators of each country as to the efficiency of the school laws, and to discover in how far their administration was adequate to supply the educational wants of these widely separated nationalities. Thus should I, I thought, be enabled to aid in perfecting our own school system, so that my experience of it, both as regards its excellences and defects, might be enlarged and corrected by that of other labourers in the same field. For comparison the following statistics are given :—

SCOTLAND (1881).—Number of schools, 3,074, inspected ; number of certificated teachers, 5,544, with a large number of pupil-teachers ; number of scholars on the roll, 545,982 ; number in average attendance, 406,966. The grant from Government amounted to £454,997. Total expenditure, £862,774.

IRELAND (1880).—Number of schools, 7,590 ; number of certificated elementary teachers, 10,674 ; number of scholars on the roll, 1,083,020 ; average attendance, 468,557 ; divided according to religious persuasion, 79 per cent. belonged to the Roman Catholic Church, 9.4 to the Episcopal, 10.7 to the Presbyterian, and .9 to other churches. The grant from Government was £597,481. Total expenditure, £737,631.

ENGLAND AND WALES (1881).—Number of schools, 18,062, inspected ; number of certificated teachers, 33,562, with a large number of assistants and pupil-teachers ; number of scholars on roll, 4,045,642 ; average attendance, 2,863,535. The grant from Government was £2,614,883. Total expenditure, £5,336,978.

SCOTLAND.

Though something had been done for the education of the people in Scotland prior to 1561, even to the extent of compelling barons and the more substantial yeomanry to send their eldest sons and heirs from the ages of six to nine to school till competently founded in Latin, and to a school of arts and law for three years longer, in order that justice might be better administered throughout the kingdom, yet it was only when the renowned John Knox and his associates were so far successful as to induce the Parliament to make a memorable provision for public education, that the real beginning of an effective and comprehensive system of popular education was made. It is chiefly among the clergy that we find anything like proficiency in literature and the arts in Scotland, as in other countries of Europe, to nearly the end of the sixteenth century ; and this fact accounts for the education of the people being put under their management and control. At the date above referred to (1551) the Scottish Parliament, at the instance of the Reformers, passed an Act containing the enlightened and wise provision that schools were to be established in every parish, colleges (grammar schools) in every notable town, and universities in cities. There were universities already at St. Andrews, Glasgow, and Aberdeen. The troublous state of the country then and for some time after made this statute almost a dead letter. The next decided step in advance was taken in the reign of Charles I., 1642, when an Act was passed ordaining that Presbyteries should see that every parish had a school where children were to be " bred in writing, reading, and the grounds of religion." And finally, in 1803, another Act was passed dealing with salaries (a fixed minimum salary was an integral part of the system), depriving school-masters of the right of appeal to the superior courts, ordering that each master should have a house (not more than two rooms), and placing the schools and masters under the entire management of the Presbyteries, and of those heritors whose yearly rental exceeded £100. Previous to this all heritors had a voice in the management of the schools.

Such in its essential features was the famous parish-school system of Scotland, of which one writer says, that " it laid the foundation of Scotland's proudest distinction, and proved the great source of her subsequent prosperity." And, it is owing, not indeed solely, but principally, to the national system of education that Scotland, as Lord Macaulay remarks, "in spite of the barrenness of her soil and the severity of her climate, has made such progress in agriculture, in manufactures, in commerce, in letters, in all that constitutes civilization, as the Old World has never seen equalled, and as the New World has scarcely seen surpassed."

IRELAND.

Against the several Acts passed relating to the education of the people of Ireland, beginning with 28 Henry VIII., the accusation has been made, and persistently maintained by the Roman Catholic Church, that their scope and aim was to withdraw the school children from the Romish Church, and induce them to become members and supporters of the Protestant Churches. It seems there were good grounds for this charge, as we have in the report of the Parliamentary Committee, 1812, this significant recommendation :—" That no scheme of education should be undertaken in Ireland which attempted to influence or disturb the peculiar religious tenets of any sect or denomination of Christians. The commencement of the Irish national system of education dates from 1831. The basis—combined literary and separate religious education—was suggested in a letter from Mr. Stanley (afterwards Lord Derby), Chief Secretary for Ireland, to the Lord Lieutenant. The system was committed to a Board of seven members of different religious opinions. State aid was given on condition that the repairs of the school, the salary of the master, and half the cost of the school-requisites should be locally provided. The policy, as at first announced, was accepted by the Catholics, but strongly opposed by the Episcopal and Presbyterian Churches. In 1839, on account of some explanation made by the Board, the Presbyterians withdrew their opposition to the scheme. By a report issued for the year 1841, it appeared that there were 2,237 schools connected with the national system, in which were taught 281,849 pupils. Shortly after this a strong desire was shown by the Catholic Church to control all schools in which were any of her children. In 1850 one of the Synods made the following declaration :—" The separate education of the Catholic youth is by all means to be preferred to having them taught in the national schools." Notwithstanding that the Board had made several changes, and all with the view of conciliating the Romish Church, such as repeated modifications of the conscience clause, the special regulation in favour of convent schools, the increased proportion accorded to Catholic representation in the Board, which had been increased from two to seven in 1831, five to fourteen in 1851, and ten to twenty in 1861, and the endowment of schools under Catholic management in the vicinity of Model Schools, still the Catholic hierarchy is very active in its opposition to the national system. No Catholic dignitary has sat in the Board since 1863. We may quote a few of the regulations :—" School-houses are not to be used as the stated places of divine worship of any religious community, nor for the transaction of any political business, and no emblems of a denominational character are to be exhibited in them during the hours of united instruction. The patrons and managers of all national schools have the right to permit the Holy Scriptures to be read at the time set apart for religious instruction." Many of you, I doubt not, remember the decidedly religious character of the Irish series of National School Readers.

Besides the national schools, which are designed, as we have seen, for all denominations, there are many schools under the immediate management of different Churches, such as the Church Education Society, the Diocesan Schools, the Institute of Christian Brothers, etc. The teachers are divided into three classes: first-class males receive from Government £58, third-class £32; females, first-class £48, third-class £25. These salaries are supplemented by result fees, and, generally speaking, the salaries are small as compared with those in either England or Scotland. The National School Teachers' Act, 1875, was designed to supplement the incomes of teachers by granting State aid corresponding to local contributions. A favourable Pension Bill has been passed quite recently, the Government setting apart £1,300,000 for this laudable purpose. The Irish teachers seem to be pretty well satisfied with the general principles of the Bill, and are now seeking to have some of its details changed.

ENGLAND AND WALES.

The attempt to educate the people in England has arisen with the Churches, and a most noteworthy feature of it is its decidedly religious character. Even at the present day the Church of England does far more, in every way, for popular education in England than the State, or in truth than the State and all the other Churches combined. The first vigorous effort to educate the masses was made by Robert Raikes, the reputed founder of Sunday-schools, in 1780 (secular as well as sacred knowledge was communicated in the first Sabbath Schools). Soon after this a controversy arose as to the relative claims of Dr. Bell (Churchman) and Mr. Joseph Lancaster (Quaker) to the monitorial system, leading to the founding of the National School Society (English Church) and the British and Foreign School Society (Dissenter). This controversy caused great activity in educational affairs, many schools being opened in every part of the country: this took place at the beginning of the century—1797, 1803, 1811. The first grant made by the State for popular education was in 1833, and was to be distributed under the management and control of the National Society and the British and Foreign Society above referred to. In 1839 the Government appointed an Educational Committee of the Privy Council, and made a grant of £30,000, the distribution of the money to be guided and controlled by this educational committee. This committee has done eminent service in the cause of education since its appointment. It ascertained the low standing of learning amongst the people ; it inaugurated a system of inspection, and endeavoured to found training colleges for teachers. It was unsuccessful in the last on account of the religious difficulty, whereupon the Churches undertook the training of teachers, and now there is quite a number of such schools or colleges in all parts of the United Kingdom. An elaborate system of inspection with grants was established in 1846 by the Committee of Council. The training of pupil-teachers, *i.e.*, boys and girls over thirteen years of age, by masters in Public Schools, was greatly encouraged. The inspection embraced the entire appearance of the school ; note was taken of discipline and of the success of the pupils ; but especial praise was given when a school seemed to be imparting a good intellectual and moral training.

While Mr. Robert Lowe, (now Lord Sherbrooke), was Vice-president of the Committee of the Privy Council on Education, in 1859, very important changes were made in the mode of inspecting the schools and distributing the Government grant. Mr. Lowe's plan embraced several particulars :—(1) That the Government shall only pay for teaching the three R's ; (2) That each child shall do a certain amount of work each year (standard), and thereon be examined, and for each pass in reading, writing, and arithmetic, the Government was to pay the managers a certain sum. The general effect of this change upon the masters and schools has been most unsatisfactory. The educators of England have been laying, in various ways, before the country the bad consequences directly and indirectly chargeable to this mode of gauging the work done in the schools—payment by results it is called—and though this is so, the Government has not made any alteration to affect the essential element for determining the sum to be paid to each school. The Bills of 1870 (Mr. Foster's), 1873, and 1876, introduced important changes, modified details, and contained the compulsory clause :—" It is the duty of the parent of every child to cause such child to receive an efficient elementary education."

Another irritating grievance to teachers in the United Kingdom has been the manner in which the Government deal with the certificates of teachers, but a concession made by the committee last winter, and now part of the school law, will, in the opinion of those concerned, go far to remove the well-founded objections urged by masters.

UNITED STATES OF AMERICA.

I do not deem it necessary to give facts connected with the school system of the United States of America and its developments, for the simple reason that our own is so similar that I would only be repeating what you are all more or less well acquainted with. Therefore, instead of doing so, let me briefly state the complaints of educators—teachers and others, at school conventions and in the public prints—complaints frequently made and strongly urged :—(1) Frequent change of teachers; (2) The influence of politics in school affairs ;—(3) The want of moral instruction in the schools. Are not these words familiar to us, and becoming more so daily? It was with peculiar interest that I noted the objections made against the Public-School system of the United States, because it seemed to me as if we were enabled, as in a glass, to look at our own country some years hence, unless especial care is taken in good time to correct what are allowed to be serious defects in that system, and the results which are showing themselves in the national character of that enterprising people.

Tenure of office by the teacher.—In Great Britain and Ireland the schoolmaster was not engaged by the year, as is the case in Canada or the United States ; but at home he was engaged for an indefinite period, or as it was expressed in Scotland, *Quamdiu se bene gesserit*, so that the teacher in most cases might remain in the same school for years, frequently for life. Since Mr. Foster's Bill became law the master is engaged for an indefinite time, subject to dismissal, on reasonable notice being given by the school managers. The school managers (trustees) claim that they have the power to do this without assigning any cause. Several cases have come before the Superior Courts in Scotland involving this point, and the decisions have been generally in favour of the managers. The Scottish masters complain of this as a hardship, and contend that a master should not be dismissed without cause assigned, and being heard in his own defence ; or before he loses his situation, that the Committee of the Privy Council on Education should send an inspector to report on the case ; or have a statement from both master and school managers for its judgment between the parties. The Committee has refused to act on either of the last two alternatives. Public opinion is somewhat divided on this matter ; but from indications in the public press, and from steps taken in the House of Commons, I would say that the public is largely in favour of the schoolmaster, and that some limit will be put on the dismissal powers of the school managers. Here I take the liberty of inserting the Bill proposed for Scotland, and most likely to become law, managers in several instances petitioning for it:

"In order to secure that no certificated teacher appointed by, and holding office under, a School Board in Scotland, shall be dismissed from such office without due deliberation on the part of the School Board, the following provisions shall, from and after the passing of this Act, have effect :—

"(1) No resolution of a School Board for the dismissal of a certificated teacher shall be valid, unless adopted at a meeting called not less than three weeks previously, by circular sent to each member, intimating that such dismissal is to be considered, and unless notice of motion for his dismissal shall have been sent to the teacher not less than three weeks previous to the meeting. Such circulars shall be held to have been delivered to the members of the School Board, if sent by the clerk by post, addressed to the usual or last known place of abode of each member, and such notice to the teacher shall be held to have been delivered if sent by the clerk by post, in a registered letter, addressed to the usual or last known place of abode of such teacher.

"(2) No resolution of a School Board for the dismissal of a certificated teacher shall be valid unless agreed to by a majority of the full number of members of such School Board.

"(4) Notwithstanding anything contained in this Act, it shall be lawful for a School Board summarily to suspend any teacher from the exercise of his duties, but such suspension shall not affect the teacher's right to the salary or other emoluments attached to the office."

How different this is from the mode of engagement on this continent. Here a teacher is hired (!) for half a year or a year; and the understanding is, unless re-engagement follows, that he leaves at the end of his term, be that a month or a year. What waste is caused by frequent changes of teacher! There is loss of time to both master and scholar, often loss of means to the master, and in many cases the country loses permanently the experienced teacher, and in his stead obtains the services of the inexperienced. For these reasons amongst others I take the liberty of recommending that all forms of agreement for second-class certificates and higher grades should be prepared on the supposition that the engagement is to continue for an indefinite period, subject to the condition of being terminable upon giving three months' notice by either trustees or teacher.

Politics in school affairs.—Though many Church schools have been transferred from the control and management of the Churches, both in England and Scotland, such changes frequently involving the retirement of the master, and though, as above stated, several test cases have been before the courts (Scotland) to ascertain the authority of school managers to dismiss masters in certain circumstances, yet not in a single instance have I observed any complaint or the remotest allusion made as to politics having any influence in the matter. In sharp contrast with this state of affairs is what we find on the other side of the great lakes. Every year complaints are made, and becoming louder and more frequent, that political considerations influence very largely both the engagement and dismissal of the school teacher, as well as affect very materially the remuneration received. As a fair specimen of what I have met in my reading time and again during the last few years, the following quotation may suffice:—" In a good many cities, the School Board has been captured by the politicians, who have used the schools to work fat jobs, sprout municipal fathers, and fill the school-rooms with incompetent favorites of the ward trustee. This petty favouritism is still the curse of the village and country schools everywhere, and like a poisonous malaria, infests the whole system of education with a general debility fatal to effective work." We have, in Canada, nothing approaching this deplorable state of affairs, and that this is so every true teacher will be most thankful. And yet let us not be exalted overmuch. Ours is a young country ; the chief superintendency abolished only a few years. Nevertheless, do we not hear now and again a note of discord ? then a plain assertion that political influence is interfering with the inspector in the discharge of his official duties ? that certain teachers, on account of political connections. are specially regarded ?

The question now is frequently asked :—Is it possible for a Minister of the Crown, however learned, upright, and wise he may be, to be free from party entanglements ? To this query the answer No rather than Yes is much more frequently given. The remedy is obvious—Return to an arrangement as free as possible from such foreign and perplexing influences as politics inevitably engender.

The third cry, a cry louder, perhaps, than either of those already noted, heard regarding the Public Schools of the United States of America is, that there is no attention paid to direct moral or religious training. The intolerance shown by the people towards any system or schools pretending, without direct moral or religious training, to provide education for their children, must have forced itself upon your notice in the very brief sketch which I have given to the educational work of Great Britain and Ireland. It is true, that in Ireland this religious training is not in the same form, nor is it carried to the same extent, as in England and Scotland. Nevertheless, there also we find special attention given to this important part of education. And this is true not only of the schools under the immediate control and management of the Churches, where, of course, we would expect to find this part of education fully recognised, but also of Board Schools. In these schools not only is time set apart for religious teaching by clergymen of different denominations, but such teaching, almost universally, is given by the master. As evidence of this strong determination on the part of the people, I can cite, perhaps, no better proof than the case of Birmingham, England. In Birmingham they began by having a purely secular form of education. The conviction was, however, soon forced upon them that morality, at least, should be taught. They thereupon introduced a "Text Book on Morals," and the result was, that a year after the Bible itself found its way into the schools. Is there any book on Morals equal to the Bible ? Did not the Birmingham people decide wisely ? Many of you, I dare say, are acquainted with the admirable provision made by the London (England) School Board for the teaching of the Scriptures to the hundreds of thousands of children who are in attendance at the schools of the metropolis of the British Empire. In Scotland the most careful provision is made for the encouragement of religious training. The Church of Scotland has in its employ inspectors who, when asked to do so, inspect and report upon the teaching of this subject alone in the Board Schools. Permit me to quote the opinion of three writers, setting forth their estimate of the Scriptures. Macaulay states :—"The sacred books of the Hebrews, books which, considered merely as human compositions are invaluable to the critic, the antiquary, and the philosopher. When we consider what sublime poetry, what curious history, what striking and peculiar views of the divine nature and of the social duties of man are to be found in the Jewish Scriptures, . . . this indifference is astonishing." To the foregoing list of critic, antiquary, philosopher, I take the liberty to add, above all, to the teacher. Froude, the historian, writes :—"The Bible is a literature of itself ; the rarest and richest in all departments of thought or imagination which exists." And Prof. Huxley believes that "the maintenance of religious feeling is the most desirable of all things, and that it cannot be maintained without the Bible." What connection, if any, actual knowledge has with religion and morals is a question with which very few people trouble themselves. Most seem to take for granted that if a child only knows how to read, write, and cipher, he is in the sure way, not only of becoming wise, but virtuous. No doubt, by reading he may improve himself, for he may read good books ; but, on the other hand, he may do himself much harm, for he may read bad books. Arithmetic and writing have really no necessary connection with morals, nor facts of any kind, except the historic facts which show how the "power which maketh for righteousness" worketh in the affairs of men." You will not understand me as overlooking the fact that the learning of these things may have its moral aspect ; for in learning them curiosity and research may be awakened. I am not forgetful of the objections urged against the cause I am advocating—denominational differences and lack of the right teachers. My answer will be very brief I believe it to be a device of the enemy of human well-being and human progress, this continual holding up of the bugbear of our denominational differences. Are they not the merest trifles in comparison with our essential agreement in religious belief? In regard to the second—lack of the right teachers—I hold that any one who cannot reverently, humbly, and lovingly read the Word of God with his class is not fit to have the teaching of a class. A callous, hard, sneering man should not have the honour or privilege of being the teacher of a school anywhere, least of all in Her Majesty's dominions. It seems as if special care were taken that the children in our Public Schools should not be required to show their knowledge of the contents of the Bible. Of all the selections for the entrance examination to the High Schools and Collegiate Institutes in this Province, made from the Fourth Reader, not one is immediately connected with a Bible theme. Would it not be as well to know who Joshua was, as to know who Hermann was? The Bible was read in many of our schools, both common and grammar, not many years since. What pushed it out of both classes of schools? I answer: school programmes of studies, inspections, and examinations. I know of a grammar school wherein the Bible was regularily read for an hour each week, and difficulties, other than theological, explained till within a score of years. But this Scripture reading was discontinued because of the cry raised respecting the low standard of learning in the grammar schools. I never heard of any difficulty then on account of either religious differences or lack of right teachers; why should there be now?

I beg to recommend that the Education Department announce to all the schools that direct moral or religious instruction is to be given, except where a vote of the people indicates the will of the ratepayers to be that such instruction is not desirable. Or if this cannot be done, that this Association appoint a standing committee to prepare a series of Bible-readings, similar to those prepared by the London School Board, and in every proper and legitimate way seek to induce school authorities to make use of them in their schools.

"Yet sage instructions to refine the soul,
And raise the genius, wondrous aid impart,
Conveying inward, as they purely roll,
Strength to the mind, and vigor to the heart;
When morals fail, the stains of vice disgrace
The fairest honours of the noblest race."

SCHOOL HOURS AND VACATIONS.

F. S. SPENCE.

Mr. President, Ladies and Gentlemen,—

Although the topic for our consideration this afternoon is seriously important, I shall not attempt any exhaustive or elaborate address on its varied details. My intention is merely to suggest a few practical ideas round which discussion of the subject may be concentrated.

Let me remind you by way of preliminary, that public schools are instituted, and ought to be conducted, entirely in the interests of the public; that public-school teachers, trustees, inspectors, and all the other appertainings of the system are successful only as far as they promote these interests; and that, in the consideration of such a subject as this, the primary inquiry ought to be, not "What would be most agreeable to teachers?" but, "What would be most beneficial to their pupils, and most advantageous to the community at large?"

That community is not itself best qualified to answer such a question. It is only from the vantage ground of professional knowledge and experience that all the bearings of any educational problem can be taken in. We must draw our conclusions as independently of popular prejudice as of personal feeling; and having done this, it then becomes our business in the first place to bring public sentiment as far as possible into harmony with our ideas, and in the second place to bring the working of our ideas as far as possible into harmony with public sentiment. In other words we must consult primarily the interests and secondarily the wishes of our employers, the people, "whose we are and whom we ought to serve."

We all, I think, agree upon the subject of holidays so far, that it is unnecessary to spend much time in discussing it.

Rest, work, and play, are all essential to the attainment of full development. One important difference between work and play, lies in the fact that we usually by an effort of the will, compel ourselves to undertake and prosecute the one, while inclination impels us to the other without any such effort; and the peculiarly fatiguing effect of work results from its double drain upon the natural energy. In the case of children, the will is not matured and strong, work has not been habitual enough to create a desire for it, and as physical and mental exercise are needed to secure development, this exercise ought to be to a great extent in the form of play.

The necessity of rest is obvious. Play is not rest. Change of work is not rest; it may give temporary relief to particular organs, but gives no relief from the will-tension, one of the most fatiguing elements of work, neither does it lessen the dissipation of energy. Vital force is expended in physical exercise as well as in hard study; and if you have done too much of the one and attempt to rectify the mistake by doing a good deal of the other, you are simply punching a second hole in the cask to prevent the water being all lost through the first. Long walks and close study have killed men who could have stood either, but not both. Rest, work, and play have different functions; they are all needful, and no one of them can safely be ignored.

There are some ratepayers and a few school trustees who seem to consider holidays an institution to cheat them out of so much of the teacher's work, and these are commonly the men who complain because the school robs them of so much of their children's time. I wish with all my heart that holidays could be fixed at a time when there would be no farm or other work to be done at home, that the boys and girls might have a fair chance to secure the play and development for which their childhood was given them.

We are too apt to forget our own childish experiences, and to hold the little noses to the grindstone more closely than we would have liked to have our own held long ago.

It is a great pity that there was any option given in the matter of holidays, and the fact that some people wanted to shorten them ought to have been a reason for not giving them the power to do so. Two months out of twelve is a small enough proportion of time to give children for rest and unfettered play.

The question of school hours—the length of time that should be spent in school each day, is important, and must be carefully considered.

A good deal of complaint has been made about the unhealthy cramming and over work to which girls and boys are subjected under our present system of competitive teaching ; and these complaints are the more worthy of consideration from the fact that they come not merely, nor even mainly, from the parents whose children are crammed, but from the teachers who do the cramming, and who, of course, ought to know all about it.

Now, intensity of application to work, is one of the most important habits that we can induce or assist our pupils to form. Attention to study cannot be too close, and relief from the pressure must be sought, not in diminishing the quality or force of the mind-tension, but in shortening the time of its exercise, and specially of its continuous exercise.

The development of this hard-study faculty can only be secured by long and careful training. To require its exercise to any extent of young pupils is simply absurd. Very short lessons with long intervals ought to be the rule in all primary classes. Keeping children in the attitude, while they are not in the act of learning is worse than useless. It is training in idleness, enforcing dissimulation, and compelling the formation of habits that must seriously militate against subsequent progress. Study hours at this period of school life should be few and brief, and should be increased only with the advance of age and mental and physical strength.

It has been proposed to shorten the hours of study by discontinuing the assigning of lessons for home preparation, but this plan is not commendable. We must aim as far as possible to make our pupils able to study without a teacher's assistance, to prepare them for independent exertion after their school course is finished ; and this is best accomplished by requiring—without immediate supervision—the performance of work the accuracy of which is afterwards carefully tested. For this reason we cannot afford to dispense with home lessons, and the easing off must be done in some other direction.

The regular school hours, in most cities and towns, at present number five, with, on an average, say one additional hour of home preparation; giving in all six hours per day of study—entirely too much for children in our junior class, and more than they can possibly do, in the way in which study ought to be done.

I am not in possession of data from the consideration of which a definite scheme might be deduced, but from what I know I would favor some such plan as the following:

Let two hours of study per day be the maximum required of children in the first part of the first-book—where they would probably average six years of age—and let this be increased by the addition of half-an-hour for each division to which the pupil is promoted, counting two grades of promotion, *i.e.*, two divisions, to each successive reading-book.

This would bring us to the present six hours in the junior fifth-book class, at say thirteen or fourteen years of age, which is quite as early as it ought to be attempted.

An important fact confronts us here; one that at first sight might be fancied a drawback to the usefulness of of the proposed reform. In all populous localities, very many girls and boys are much better off at school then they would be anywhere else. Some parents are so situated that they cannot, and some are so careless that they will not, look after their children as they should. In such cases, away from the teacher means away from all restraining and elevating influences; probably undergoing the street education that hardly ever fails to turn out apt and accomplished graduates; and shortening the hours of school is simply lengthening the hours of exposure to contaminating associations. Against such results we cannot guard too carefully. Relief must be sought that will neither diminish intentness while study goes on, nor shorten the time of the teacher's supervision and control.

It may appear somewhat paradoxical to propose to remedy the evils of over-work by increasing the number of departments of work, but in the present instance this method can be made effectual in securing that result.

There are several branches of instruction that are now barely recognized in our public school curriculum, and yet are so important that their omission leaves us a very imperfect and one-sided teaching system.

One of these is physical education, development of muscle, &c., of which we hear so much but see so little. All our energies as educators are devoted to developing the mind, and the soil in which it roots, and on which it depends, is utterly neglected.

Probably much of the ill-health and physical weakness attributed to excess of mental exertion, are really caused by lack of bodily exertion

Dumb-bells might often supersede doctors. Taking half-an-hour each half-day from cramming and giving it to scientific gymnastics would be a much more rational method of relief from the brain-pressure, than turning out our boys for that half-hour to learn bad practices on our streets.

Correct habits—not merely sound theories—of breathing, swimming, walking and exercising, and living generally would be, to nine-tenths of our pupils, of far more practical benefit than a knowledge of grammar or fractions.

Another of these neglected branches is morality—one of the most important and most difficult matters with which a teacher has to deal. We may rationalize about it as we choose, but experience shows unmistakeably that (at any rate with children) morality is much more a habit than it is the working out of any ethical system ; and is to be secured by directing the course of conduct that develops habit more than by inculcating theories and principles. A boy's character is determined by what he is and does, not by what he knows. That character is formed, not in the restraining atmosphere of school, but in the untrammelled associations of every-day life—far more in the play-ground than in the class-room. Let pupils have as much as possible of this free out-door intercourse under the watchful eye of judicious teachers. Then they will learn to respect each others rights ; to play without cheating, to talk without swearing, to associate without teasing or bullying, and the teacher will note and remember the incipient tendencies that may almost impreceptibly be developed or repressed. Yard superintendence is one of the most imperative of school duties ; and, as a rule, children had better be an hour by themselves at their lessons than ten minutes by themselves at play. The necessity of attention to this subject is imperative. The character-tone of our growing-up boys is far below what it ought to be, and it is positively dangerous to permit their promiscuous crowding and play without any direction or restraint.

What has been said about morality applies more to boys, but what has been said about physical education applies, perhaps, as much more to girls. Boys take more exercise in their games, and occasionally have the sawing of wood and such like blessings vouchsafed by judicious parents. And if more of the latter would provide some active work for a part of their sons' spare time, they would do incalculable good to the souls and bodies of some embryotic citizens, who are now ruining both in loafing idly, or worse than idly, round our lanes and lamp-posts.

Give children plenty of play, but beware of the danger of allowing boys to congregate promiscuously on street corners and in evening hours with no one to see that they do and say only what is right.

In view of such facts as these but one conclusion can be drawn, that is, the longer the hours of school the better for the scholars, provided by school hours we do not mean simply hours of study, but hours of education and supervision.

This brings us face to face with the problem of where the dividing line between the duties of parents and teachers is to be drawn. Absolutely there is no such line. As far as children are concerned, teachers are a necessary evil, doing the work that in a perfect state of society ought to be the work of parents and the work of home. At present we find that one department of this work is being overdone by the teacher, and the remedy is simply to do less of that and more of something else.

The question comes up: If the duration of school hours is so desirable, should they not be lengthened? There are two reasons for answering emphatically in the negative. In the first place, it is a serious wrong to usurp the functions and lessen the responsibilities of the sacred institution of Home. Society may be too artificial, too much organised. Public schools should never become what boarding-schools now are—a dangerous interference with the natural and healthful relations of domestic life. And in the second place, even where the home is so far from what it ought to be that children are happier and safer at school, we must be honest. The public is not yet educated to proper appreciation of what the teacher does, and to equitable remuneration for the time he already spends in its service; it would hardly be willing to pay for more. It is wicked to defraud or oppress even ourselves. Justice is a virtue as well as generosity, and compelling the uncompensated teaching of morality would be rather inconsistent.

In connection with over-work there is a matter which must not be unnoticed. There obtains in some schools a system of well-named "imposition work," that is not merely an imposition but an outrage upon children who, it is admitted, are already over-burdened with study. If a duty has been wilfully neglected at its proper time, its performance in the scholar's spare time ought, of course, to be insisted upon as a point of honesty. If, say, a dictation lesson has not been prepared, there is a manifest advantage in requiring the writing out of the mis-spelled words a number of times. Such extra work is only right. But it is not right, because of some trifling act of misconduct, to require a child to write out several pages of a reading book, or perform some long, wearisome arithmetical calculation, in addition to his regular lessons. To compel a boy who has other school work in the evenings to sit writing at such an unmeaning task, with restless nerves, and tired hand, and aching head, when he ought to be at play or sleep, is as essentially and literally corporal punishment as in the much-condemned whipping that would be far less injurious to either body or mind. Apart from this, it is bad to develop in a child any feeling of a relationship between hard study and punishment. This is one direction in which over-work may often be profitably curtailed.

Study hours might be somewhat shortened by lengthening the mid-day intermission. *In cities and towns* this would also permit the abolition of the reprehensible practice of lunching in school-rooms, and so would promote the health and comfort of both pupils and teachers. At noon, a boy is a very convenient article about a house, to fill stoves and run messages, and a girl is often exceedingly useful in preparing dinner, washing dishes, and so on. This is the particular time of the day that absence from school would be safest for scholars, and if the noon recess were lengthened, we might compel them to go home without hardship to any, and probably with benefit to all. There would be little loafing done then, and a longer rest from study at mid-day would be a good plan of easing off some of the pressure.

In conclusion, to sum up what has been advanced :—

I. We want, as soon as possible, a graduated system of study, gymnastics, and play, all directed by the teacher, and severally proportioned to the age and proficiency of the pupils.

II. As measures of immediately practical relief the following might be adopted : 1. Let the forenoon recess be abolished and its place supplied by half-an-hour of gymnastic drill. 2. Let the afternoon recess be made half-an-hour, and in it let all teachers mix with and oversee their scholars. 3. Let the schools be closed for two hours at noon in cities and towns ; and in rural sections let 3.30 be the time for closing in the afternoon.

These changes would be advantageous to all concerned, a gain to the teachers, a convenience to the parents, and a benefit to the scholars. We would still have five hours of study, four in the class-room and one at home, quite enough for most of our pupils ; and our school curriculum would more fully and rightly recognise the existence of muscle and morals, as well as mind.

CURRENT QUESTIONS IN EDUCATION.

BY PROF. GOLDWIN SMITH, D.C.L.

LADIES AND GENTLEMEN,—

Your President did me the honour of desiring me to take part in your proceedings ; but I fear that the interest I feel in them as a member of the educational profession, is my only justification for accepting the invitation. I have nothing specially interesting or instructive to say to you. For a year past I have been absent from Canada, and I have not kept up my knowledge of the questions which make up your programme

You might think that I had something to report from England. But in England, while I was there, the thoughts of everybody were absorbed by what was passing on the political scene. I confess I had hardly eyes for anything but the cloud which had gathered over my country, and the peril which threatened those august institutions so long the admiration and the guiding light of the world. The great lesson which I brought back from England was that faction—call it by the name of party or by what other specious name you will—if it is allowed to prevail over patriotism, may bring the noblest and mightiest of nations to the dust. However, in England, amidst the political convulsions education was marching on. I saw everywhere new improvements in the method of teaching, in apparatus, in school buildings, and increased efforts to unite the parts of the system, from the universities down to the elementary schools, and mould them into a perfect whole. Marvellous is the advance in these respects. I was at Eton, where we were supposed to have the best, and certainly paid for the best, of everything, and I doubt whether our school-rooms, and books, and apparatus would now pass muster with the inspector of a Common School. I turned up the other day a child's book, with wood-cuts, printed fifty or sixty years ago. It had belonged to a wealthy family, and was no doubt deemed a work of art in its day : in the present day it would be deemed beneath contempt. Among other signs of advance, cities had largly availed themselves of the Act empowering municipalities to raise funds for the maintenance of public libraries A movement appears to be going on for the institution of a public library in Toronto. Nothing can be more laudable than the object. But before taking any practical step, we ought, perhaps, to consider how far the question is modified by the extraordinary development of cheap printing, which seems likely to prove an event in intellectual history second in importance only to the invention of printing itself. Not only novels, but works of all kinds, literary and scientific, standard as well as the most recent, can now be bought for a few cents, and everybody can have as much reading as business men or artisans have time for, at the cheapest rate in his own home. By exchanging with neighbours, the home library may be still further enlarged. The need for city libraries, therefore, seems to be less. What would be a certain benefit in its way is a provincial library of books of reference and other works not likely to be reprinted in a cheap form, to which students and persons engaged in special researches, or in need of special information might resort. It has occurred to me that the Parliamentry Library might be developed into something of this kind. Members of Parliament might use it, so far as they had occasion, all the same. It would be essential to have a good librarian, a man thoroughly conversant with books, who would be able to guide readers to the authorities for any special line of study, and to advise those who chose to consult him in the formation of their own libraries.

Perhaps the greatest novelty which I saw in England, in the way of education, was the local College of Nottingham. Nottingham is one of the busiest of the British hives of industry, and the lives of men there are, of course, devoted to the pursuit of wealth. But the people have arrived at the conviction that man cannot live by bread alone; that wealth is of no use unless it can be worthily enjoyed; that it can hardly be worthily enjoyed without some cultivation of mind; that the chiefs of industry in a free country have social and political, as well as commercial functions to discharge, and cannot discharge them well without having their minds opened and enriched. The result is a sumptuous pile dedicated as a local college to the highest education, and affiliated to the old historic universities of Oxford and Cambridge, which allow attendance at the local college to count, to a certain extent, for their degrees. The system of affiliation to the great national universities seems to me far better than multiplication of colleges with university powers—the "one-horse" college system, as they call it in the States. Some time ago the plan of affiliation was proposed, when all the local colleges would have been glad to come into it; but ancient and richly endowed bodies are slow in moving, and the measure was put off till Owens College, at Manchester, had obtained a charter with university powers. There seems now, however, to be a wish to prevent the multiplication of universities from going further. We have had this question before us here, and, perhaps, there is little use in raising it again. The Provincial University having been originally confined to the Established Church, other churches were obliged to found universities of their own, and when the Provincial University was thrown open, some members of the Church of England seceded, and founded another college by themselves. The upshot is that in a province which could barely maintain one great university, we have, I believe, seven bodies with the power of conferring degrees. We have got, through a series of untoward accidents, into the system, and cannot now get out of it. We can, therefore, only make the best of it. But it must be fatal to the highest teaching, because only a great university can afford a proper staff of first-rate teachers to the standard of degrees, and to that function of a university which is not less important than education, the advancement of science and learning. We must be glad, however, to see St. Michael's College, Knox College, and the Baptist College placing themselves by the side of the Provincial University. The solution of the religious difficulty with regard to universities seems to be a secular university with religious colleges, and colleges having their own system of religious teaching and moral discipline within their walls, while they use and support the lectures, museums, and laboratories of the University.

In the reports of committees which have just been read, I observed a recommendation that the Bible should be read in all schools. This introduces a question of great difficulty, especially at the present time. We are living in the midst of religious as well as political revolution; indeed, the political revolution may be said to be the consequence and the sign of the religious, which is the deeper unrest. I was for some time in Paris, and it was almost appalling to see the fury with which the struggle was being carried on between the assailants and the defenders of religion. This, in truth, is the real French Revolution. The first Revolution was comparatively superficial; it did not affect the fundamental beliefs, and thus Napoleon was able with great ease, to restore not only the monarchical institutions, but the Church of the old *régime*. But now the fundamental beliefs and ideas are the objects of attack. Now, the party hostile to religion is not content with liberty and toleration; it seeks to drive religion out of government, out of education, out of the whole life of the people. I went into an anti-clerical book store and found there things exceeding in atheistic violence anything published at the time of the first Revolution. We, happily, have to cope with the difficulty in a milder form, but still we have to cope with it. My own convictions would lead me to sympathise with the desire to see a religious element introduced into the education of a child. But if you make any general law upon the subject, you will have to encounter objections from more than one quarter. For my part, I should be inclined to adhere to the principle of local self-government, and allow the matter still to be settled in each case by the Board of School Trustees, subject to two safeguards—a conscience clause, enabling parents to withdraw their children if they please from the religious exercises; and a power vested in some higher and thoroughly impartial authority of putting a veto upon anything really sectarian. If you make a general law, you will, among other consequences, render more difficult than ever the completion of the unity of our system by the abolition of Separate Schools. Otherwise that change may be hoped for in time. Very likely, in the first instance, the concession of Separate Schools was a wise act of statsmanship. There had been fierce struggles between Protestants and Catholics; the contest about Catholic emancipation was comparatively fresh in memory, and a Catholic might not unreasonably apprehend aggression upon the faith of his child. He cannot reasonably apprehend aggression now. In districts where there are not Catholics enough to maintain Separate Schools, Catholic children do go to the Common Schools, and I have not heard that there are any complaints of insidious attacks upon the child's religion. The State is bound to respect conviction, but it is not bound to pay attention to groundless suspicion, or to mould its institutions for the purpose of preserving any special influence, clerical or political.

I noticed also, in the report first read, the expression of an opinion that education should be entirely separate from politics. In that opinion I concur so heartily that I used always in England to advocate the abolition of the representation of the universities in Parliament, because it seemed to me, by connecting us with political party, to bring down from their high and proper ground of impartiality the places of national education. Places of national education have to do with politics only as they produce good and enlightened citizens, which they will not do if they are under party influence. I have sometimes thought it not unlikely that the province might in time be led to consider the expediency of returning to something like the old system of a Council of Public Instruction. Not that I have any personal desire to repeat the experience which I once underwent as a member of that body. The Council had obvious defects. A body consisting of members engaged in other occupations, and meeting only occasionally, could not undertake the work of current administration. But it might be very useful for the decision of general questions, and, perhaps, as a court of appeal in questions of right, where there was any danger of political or other influences creeping in. The Council was broken up in a storm, which, perhaps, prevented the Government and the province from considering sufficiently what there was in the institution that was good and worthy to be retained. The causes of the storm were two-fold, upon both of which I, as a member of the body wrecked in it, can look back without any compunction or shame. 1st. Our insisting upon a revision of the text-books, some of which were then not only below the mark, but full of blunders, and 2nd Our proceeding to enquire into the usefulness of the Books and Apparatus Depository. In the latter case it seems to have been subsequently proved that we did right. The Council, as I have said, had its defects, and it may have committed errors, but at all events it was entirely free from political influence, and decided questions in the interest of education without caring for any political vote. I wish that I had any matter of greater interest to bring before you, but at present I have not, and can only conclude by thanking you for your attention, and wishing success to the objects of your conference.

"INDUCTIVE AND DEDUCTIVE METHODS IN EDUCATION."

BY PROF. McVICAR, PH. D., LL.D.

It is due to myself, and to the Association, to state that the subject I am about to discuss is not one of my own choosing. Your Executive Committee, being anxious that this subject should be brought before you at this Meeting, asked me to lead in the discussion. I consented to do so, with the understanding that I should present my views simply in outline, and in a somewhat propositional form, leaving time and opportunity for a thorough discussion by Members of the Association of the positions outlined.

There is much in the discussions of educational subjects at the present time, that is very misleading. This arises largely from the prevailing use of educational maxims and peculiar educational phrases, which, in a limited sense, embody some truth, but which, when made the foundation of a system of truth, lead to the most absurd conclusions and fatal results. This, I believe, is somewhat true of the subject now before us. It seems to sound very learned and scientific to talk of "Inductive and Deductive Methods in Education." Yet, if compelled to define the exact meaning of each of these methods, some difficulty might be experienced in determining in what sense education can either be inductive or deductive. In view of this fact, it is necessary before we proceed farther to fix in our minds clearly just what we mean by education.

EDUCATION DEFINED.

. 1. Education, in a broad sense, may be defined as that development or growth of a human being which is the product of the joint action of inherent natural, powers and of external conditions or environments. In the ordinary or restricted sense, however, education means the legitimate development or growth of a human being which is the product of the joint action of inherent natural powers, and of external conditions or environments supplied by the agency of a teacher. This defines education simply as a product, but it must be noted that it is no more a product than it is a process. Hence I must add, that as a process, education means the course of training, instruction, and discipline through which a human being passes to acquire the full and legitimate exercise of all the organs of the body, the full and legitimate exercise of all the powers of the mind, and so much systematic knowledge as will fit him to use in an intelligent and efficient manner the organs of his body and the powers of his mind in performing physical, intellectual, and moral work.

In the discussion of our subject, it is important also to distinguish clearly between a general and special or professional education. Hence, I add still farther, in the way of definition, that a general and symmetrical education should include such a course of training, instruction, and discipline as will produce and maintain a normal and harmonious action of all the organs of the body, and of all the powers of the mind, and, hence, develop at the proper time and in proper proportions, physical and mental power, physical and mental habits, a comprehensive grasp of systematic knowledge, and a pure and elevated taste.

A professional education, on the contrary, should develop specially those organs of the body and powers of the mind which are called into exercise in performing a special kind of work, and should include so much professional knowledge as will fit the person to perform this special work in the most intelligent and efficient manner.

FACTORS AND PRODUCTS OF EDUCATION.

2. In whatever manner education may be conducted, there are three factors involved, namely, the teacher, the pupil, and the instrumentalities by which the teacher affects the pupil. The word teacher in this connection is used to include any agent who directs and controls the instrumentalities by which the pupil is affected, hence the parents and the pupils themselves are included. When a pupil becomes his own agent in directing his physical and mental development, the process is very properly called self-education. Through the joint operation of the three factors named, the pupil should be made the recipient of four distinct products ; namely, increase of power, right habits, increase of knowledge, and a correct and elevated taste. To guard against wrong impressions from the position just stated, let me say that each of these four products have reference alike to our physical, intellectual, and moral or spiritual natures. When speaking, for example, of increase of power as an educational product, physical, intellectual, and moral or spiritual power are all included. We maintain that the development of a true and noble manhood is possible only as the three departments of our nature are symmetrically unfolded.

3. Having indicated very briefly what education includes, and the factors and products involved, we are now in a position to state how much can be properly meant by "Inductive and Deductive Methods in Education." And first let us note the relation of these methods to each other. Induction and Deduction are separate mental processes, and as such, each constitutes one class of mental work. They are, however, separate only in the sense of parts of one whole. Each is dependant upon the other, and no symmetrical development of mind is possible when a proper training in either process is neglected.

Again Induction and Deduction are separate methods of investigating truth and of acquiring knowledge. In this case, also, they are separate only in the sense of being parts of one whole. Each has its peculiar place, and the use of each in its place is the only course that can be pursued in the investigation of principles and laws, and in the pursuit of knowledge. Hence, "Inductive and Deductive Methods in Education" are inseparable, neither can be substituted for the other, and neither can be omitted without fatal injury to the pupil.

But to be more specific, the view generally known as the Inductive Method in Education is imbodied in the maxim, "The mind proceeds from the simple to the compound, from the known to the unknown, from the particular to the general." This maxim is true as far as it goes, but it must be observed that it covers simply the pursuit of knowledge, and that this is only one of the four products which a true method of education should invariably produce.

And just here let me state that the assumption seems to prevail from the Primary School to the University, that the chief if not the only work to be done during the various stages of an educational course, is to acquire a wide range of knowledge, hence the cramming of which we hear so much complaint at the present time. This assumption is a fatal mistake. Knowledge is a very important factor, but I maintain, that in the process of education, it should be subordinate to the other three factors ; namely, the development of power, the formation of right habits, and the development of a correct and elevated taste. The old maxim, that " Knowledge is power," has deceived many. Knowledge is power in the limited sense, that a sharp two-edged sword is power. Knowledge, like the sword, is capable of doing execution when wielded by a man of power, of right habits, and of a correct and elevated taste ; but alas for the man of knowledge where these are lacking.

Once more let me ask you to note that the process of induction is used only in acquiring first-hand knowledge ; hence, its sphere from an educational standpoint is comparatively limited. By far the greater part of our knowledge is second-hand, and is accepted on faith rather than as the result of original inductions. In fact the inductive process should be used in the school-room, not so much to acquire knowledge, as to give to the mind a certain kind of discipline, and hence develop strength and habits of work, which can be gained only in this way. Believing as I do, that acquiring knowledge, either first-hand or second-hand, is only one and, perhaps, the least important of four classes of results, which should be secured to the pupil in the course of his education, I unhesitatingly state that far too much importance is attached by certain educators to the inductive method. This method should have its place in school work, but a great mistake is made when it is assumed that a large share of the mental discipline in Elementary Schools and Colleges should be of this nature.

In bringing this brief and hence necessarily imperfect paper to a close, I cannot perhaps better illustrate the fact that the teacher's labors, and, indeed, the process of education generally, lies largely outside of the so-called Inductive and Deductive Methods, than by indicating propositionally in one or two cases the nature of the work the teacher should perform for his pupil.

1. The teacher should seek at every stage of his work to place the pupil in such a position as will develop the power of acquiring new

experiences and new knowledge, without any aid from the living teacher.

I suggest that this can be done most successfully :

(*a*) By arranging the pupil's work in such a manner that each step prepares him thoroughly to perform the step immediately following without any aid from the teacher or other sources. The arrangement of the work should in every case be adapted to the age, strength, and peculiar environments of the pupil.

(*b*) By the use of an illustration or series of illustrations which will place the subject under consideration in such relation to the pupil's mind as will enable him, by his own effort, to perform the work proposed. All illustrations used for this purpose should be selected from what is known and familiar to the pupil, should be simple and clear, should be new, striking, and forcible, and should be presented so as to direct attention sharply to the thing illustrated.

(*c*) By proposing a question or series of questions which will place the pupil's mind in a condition to apprehend clearly the work to be done, and which will enable him by his own effort to do what he apprehends.

In pursuing this course only such questions should be asked as will stimulate the pupil to question himself, and hence enable him by his own effort to perform the work proposed. Each question should originate in a present and conscious weakness or difficulty of the pupil, and should be directed to the pupil's weakness or difficulty in such a manner as to render him simply the help necessary in his present condition.

(*d*) By giving the pupil a direction or suggestion which will place him in a proper condition to do his work.

Such directions or suggestions should not be in the form of specific rules which the pupil is to follow blindly. They should simply indicate the work to be done, and hence confine the pupil to the kind and course of effort necessary to do it.

2. The teacher should seek, at every stage of his work, to place the pupil in such a position as will cause him to form habits of doing mental work, that will enable him, unaided by the teacher or other help, to examine new subjects in such a manner as to reach reliable results.

I suggest that the formation of the following habits of doing mental work will accomplish the end here proposed.

(*a*) The habit of giving close attention, or of excluding from the mind everything that does not pertain to the subject under consideration.

(*b*) The habit of making observations and experiments in an orderly, accurate, and exhaustive manner.

(*c*) The habit of reasoning closely and accurately upon all subjects studied.

(*d*) The habit of careful and sharp self-questioning as a means of solving or explaining difficulties, and of giving familiarity with the truth involved in the subject studied.

(*e*) The habit of persistently studying the difficulties that necessarily occur in any subject pursued, until they are clearly understood.

(*f*) The habit of carefully reviewing all work done, and, before regarding it as completed, formulating it in simple, correct, and clear language.

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